

City of San Diego

CONTRACTOR'S NAME: _____ Ortiz Corporation
ADDRESS: 2000 McKinley Ave, National City, CA 91950
TELEPHONE NO.: (619) 434-7925 **FAX NO.:** (619) 434-7931
CITY CONTACT: Juan E. Espindola - Contract Specialist, Email: JEEspindola@sandiego.gov
Phone No. (619) 533-4491, Fax No. (619) 533-3633
JRamos / RWBustamante / Lad

BIDDING DOCUMENTS



FOR

30TH STREET PIPELINE REPLACEMENT

BID NO.: _____ **K-18-1517-DBB-3-A**
SAP NO. (WBS/IO/CC): _____ **S-12010**
CLIENT DEPARTMENT: _____ **2000**
COUNCIL DISTRICT: _____ **3**
PROJECT TYPE: _____ **KA, KB**

THIS CONTRACT WILL BE SUBJECT TO THE FOLLOWING:

- PHASED-FUNDING
- THE CITY'S SUBCONTRACTING PARTICIPATION REQUIREMENTS FOR SLBE PROGRAM.
- PREVAILING WAGE RATES: STATE FEDERAL
- APPRENTICESHIP

BID DUE DATE:

2:00 PM

OCTOBER 3, 2017

CITY OF SAN DIEGO

PUBLIC WORKS CONTRACTS

1010 SECOND AVENUE, 14TH FLOOR, MS 614C

SAN DIEGO, CA 92101

ENGINEER OF WORK

The engineering Specifications and Special Provisions contained herein have been prepared by or under the direction of the following Registered Engineers:

30th St Pipeline Plans numbered 38145



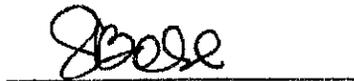
1) Registered Engineer

8/21/17

Date

Seal:



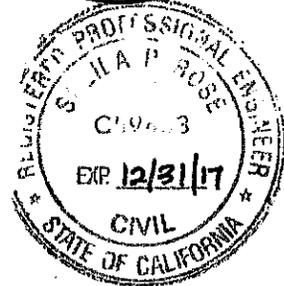


2) For City Engineer

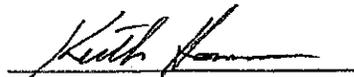
8/21/17

Date

Seal:



Redwood and 30th St Plans numbered 38362



3) Registered Engineer

8/21/17

Date

Seal:





4) For City Engineer

8/21/17

Date

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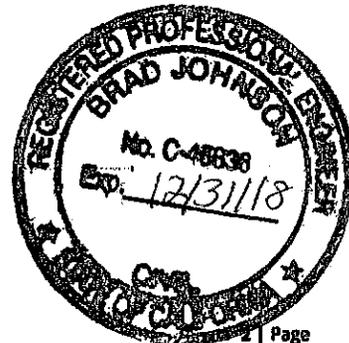


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NOTICE INVITING BIDS

1. **SUMMARY OF WORK:** This is the City of San Diego's (City) solicitation process to acquire construction services for the replacement of the existing water mains along 30th Street/Fern Street Between Polk Avenue and Commercial Street in the communities of North Park, South Park, and Golden Hill. The work also includes new storm drain inlets associated with the curb ramp improvements at the intersection of 30th Street and Redwood Street. For additional information refer to **Attachment A**.
2. **FULL AND OPEN COMPETITION:** This contract is open to full competition and may be bid on by Contractors who are on the City's current Prequalified Contractors' List. For information regarding the Contractors Prequalified list visit the City's website: <http://www.sandiego.gov>.
3. **ESTIMATED CONSTRUCTION COST:** The City's estimated construction cost for this 30th Street Pipeline Replacement is **\$22,300,000**.
4. **BID DUE DATE AND TIME ARE: OCTOBER 3, 2017.**
5. **PREVAILING WAGE RATES APPLY TO THIS CONTRACT:** Refer to Attachment D.
6. **LICENSE REQUIREMENT:** The City has determined that the following licensing classification(s) are required for this contract: **A or C34**.
7. **SUBCONTRACTING PARTICIPATION PERCENTAGES:** Subcontracting participation percentages apply to this contract.
 - 7.1. The City has incorporated **mandatory** SLBE-ELBE subcontractor participation percentages to enhance competition and maximize subcontracting opportunities. For the purpose of achieving the mandatory subcontractor participation percentages, a recommended breakdown of the SLBE and ELBE subcontractor participation percentages based upon certified SLBE and ELBE firms has also been provided to achieve the mandatory subcontractor participation percentages:

1. SLBE participation	8.1%
2. ELBE participation	14.2%
3. Total mandatory participation	22.3%
 - 7.2. The Bid may be declared non-responsive if the Bidder fails the meet the following requirements:
 - 7.2.1. Attend the Pre-Bid Meeting as described herein.
 - 7.2.2. Include SLBE-ELBE certified subcontractors at the overall mandatory participation percentage identified in this document; **OR**
 - 7.2.3. Submit Good Faith Effort documentation, saved in searchable Portable Document Format (PDF) and stored on Compact Disc (CD) or Digital Video

Disc (DVD), demonstrating the Bidder made a good faith effort to outreach to and include SLBE-ELBE Subcontractors required in this document within 3 Working Days of the Bid opening if the overall mandatory participation percentage is not met.

8. PRE-BID MEETING:

- 8.1.** Prospective Bidders are **required** to attend the Pre-Bid Meeting. The purpose of the meeting is to discuss the scope of the Project, submittal requirements, the pre-qualification process and any Equal Opportunity Contracting Program requirements and reporting procedures. To request a sign language or oral interpreter for this visit, call the Public Works Contracts Division at (619) 533-3450 at least 5 Working Days prior to the meeting to ensure availability. **Failure to attend the Mandatory Pre-Bid Meeting may result in the Design-Builder's Bid being deemed non-responsive. The Pre-Bid meeting is scheduled as follows:**

Date: September 13, 2017

Time: 10:00 AM

Location: 1010 Second Avenue, 14th Floor, San Diego, CA 92101 (Large Conference Room)

Attendance at the Pre-Bid Meeting will be evidenced by the Bidder's representative's signature on the attendance roster. It is the responsibility of the Bidder's representative to complete and sign the attendance roster.

Bidders may not be admitted after the specified start time of the mandatory Pre-Bid Meeting.

9. AWARD PROCESS:

- 9.1.** The Award of this contract is contingent upon the Contractor's compliance with all conditions of Award as stated within these documents and within the Notice of Intent to Award.
- 9.2.** Upon acceptance of a Bid, the City will prepare contract documents for execution within approximately 21 days of the date of the Bid opening. The City will then award the Contract within approximately 14 days of receipt of properly signed Contract, bonds, and insurance documents.
- 9.3.** This contract will be deemed executed and effective only upon the signing of the Contract by the Mayor or his designee and approval as to form the City Attorney's Office.
- 9.4.** The low Bid will be determined by Base Bid plus all Alternates.
- 9.5.** Once the low bid has been determined, the City may, at its sole discretion, award the contract for the Base bid alone; or for the Base bid plus one or more alternates.

10. SUBMISSION OF QUESTIONS:

11.1 The Director (or Designee) of the Public Works Department is the officer responsible for opening, examining, and evaluating the competitive Bids submitted to the City for the acquisition, construction and completion of any public improvement except when otherwise set forth in these documents. Any questions related to this solicitation shall be submitted to:

Public Works Contracts
1010 Second Avenue, 14th Floor
San Diego, California, 92101
Attention: Juan E. Espindola - Contract Specialist

OR:

JEEspindola@sandiego.gov

11.2 Questions received less than 14 days prior to the date for opening of Bids may not be considered.

11.3 Questions or clarifications deemed by the City to be material shall be answered via issuance of an addendum and posted to the City's online bidding service.

11.4 Only questions answered by formal written addenda shall be binding. Oral and other interpretations or clarifications shall be without legal effect. It is the Bidder's responsibility to be informed of any addenda that have been issued and to include all such information in its Bid.

11. PHASED FUNDING: For Phased Funding Conditions, see Attachment B.

12. ADDITIVE/DEDUCTIVE ALTERNATES:

12.1. The additive/deductive alternates have been established to allow the City to compare the cost of specific portions of the Work with the Project's budget and enable the City to make a decision whether to incorporate these portions prior to award. The award will be established as described in the Bid. The City reserves the right to award the Contract for the Base Bid only or for the Base Bid plus one or more Alternates.

12.2. For water pipeline projects, the Plans typically show all cut and plug and connection work to be performed by City Forces. However, Bidders shall refer to Bidding Documents to see if all or part of this work will be performed by the Contractor.

INSTRUCTIONS TO BIDDERS

1. PREQUALIFICATION OF CONTRACTORS:

- 1.1. Contractors submitting a Bid must be pre-qualified for the total amount proposed, including all alternate items, prior to the date of submittal. Bids from contractors who have not been pre-qualified as applicable and Bids that exceed the maximum dollar amount at which contractors are pre-qualified may be deemed **non-responsive** and ineligible for award. Complete information and links to the on-line prequalification application are available at:

<http://www.sandiego.gov/cip/bidopps/prequalification.shtml>

- 1.2. The completed application must be submitted online no later than 2 weeks prior to the bid opening. For additional information or the answer to questions about the prequalification program, contact David Stucky at 619-533-3474 or dstucky@sandiego.gov.
- 1.3. Due to the City's responsibility to protect the confidentiality of the contractors' information, City staff will not be able to provide information regarding contractors' prequalification status over the telephone. Contractors may access real-time information about their prequalification status via their vendor profile on [PlanetBids™](#).

2. **ELECTRONIC FORMAT RECEIPT AND OPENING OF BIDS:** Bids will be received in electronic format (eBids) EXCLUSIVELY at the City of San Diego's electronic bidding (eBidding) site, at: <http://www.sandiego.gov/cip/bidopps/index.shtml> and are due by the date, and time shown on the cover of this solicitation.

- 2.1. **BIDDERS MUST BE PRE-REGISTERED** with the City's bidding system and possess a system-assigned Digital ID in order to submit an electronic bid.
- 2.2. The City's bidding system will automatically track information submitted to the site including IP addresses, browsers being used and the URLs from which information was submitted. In addition, the City's bidding system will keep a history of every login instance including the time of login, and other information about the user's computer configuration such as the operating system, browser type, version, and more. Because of these security features, Contractors who disable their browsers' cookies will not be able to log in and use the City's bidding system.
- 2.3. The City's electronic bidding system is responsible for bid tabulations. Upon the bidder's or proposer's entry of their bid, the system will ensure that all required fields are entered. **The system will not accept a bid for which any required information is missing.** This includes all necessary pricing, subcontractor

listing(s) and any other essential documentation and supporting materials and forms requested or contained in these solicitation documents.

2.4. BIDS REMAIN SEALED UNTIL BID DEADLINE. eBids are transmitted into the City's bidding system via hypertext transfer protocol secure (https) mechanism using SSL 128-256 bit security certificates issued from Verisign/Thawte which encrypts data being transferred from client to server. Bids submitted prior to the "Bid Due Date and Time" are not available for review by anyone other than the submitter which has until the "Bid Due Date and Time" to change, rescind or retrieve its proposal should it desire to do so.

2.5. BIDS MUST BE SUBMITTED BY BID DUE DATE AND TIME. Once the bid deadline is reached, no further submissions are accepted into the system. Once the Bid Due Date and Time has lapsed, bidders, proposers, the general public, and City staff are able to immediately see the results on line. City staff may then begin reviewing the submissions for responsiveness, EOCP compliance and other issues. The City may require any Bidder to furnish statement of experience, financial responsibility, technical ability, equipment, and references.

2.6. RECAPITULATION OF THE WORK. Bids shall not contain any recapitulation of the Work. Conditional Bids may be rejected as being non-responsive. Alternative proposals will not be considered unless called for.

2.7. BIDS MAY BE WITHDRAWN by the Bidder only up to the bid due date and time.

2.7.1. Important Note: Submission of the electronic bid into the system may not be instantaneous. Due to the speed and capabilities of the user's internet service provider (ISP), bandwidth, computer hardware and other variables, it may take time for the bidder's submission to upload and be received by the City's eBidding system. It is the bidder's sole responsibility to ensure their bids are received on time by the City's eBidding system. The City of San Diego is not responsible for bids that do not arrive by the required date and time.

2.8. ACCESSIBILITY AND AMERICANS WITH DISABILITIES ACT (ADA) COMPLIANCE: To request a copy of this solicitation in an alternative format, contact the Public Works Contract Specialist listed on the cover of this solicitation at least five (5) working days prior to the Bid/Proposal due date to ensure availability.

3. ELECTRONIC BID SUBMISSIONS CARRY FULL FORCE AND EFFECT

3.1. The bidder, by submitting its electronic bid, acknowledges that doing so carries the same force and full legal effect as a paper submission with a longhand (wet) signature.

6. **JOINT VENTURE CONTRACTORS:** Provide a copy of the Joint Venture agreement and the Joint Venture license to the City within 10 Working Days after receiving the Contract forms. See 7-6, “The Contractors Representative” in The GREENBOOK and 7-6.1 in The WHITEBOOK.
7. **PREVAILING WAGE RATES WILL APPLY:** Refer to Attachment D.
8. **SUBCONTRACTING PARTICIPATION PERCENTAGES:** Subcontracting participation percentages apply to this contract. Refer to Attachment E.
9. **INSURANCE REQUIREMENTS:**
 - 9.1. All certificates of insurance and endorsements required by the contract are to be provided upon issuance of the City’s Notice of Intent to Award letter.
 - 9.2. Refer to sections 7-3, “LIABILITY INSURANCE”, and 7-4, “WORKERS’ COMPENSATION INSURANCE” of the Supplementary Special Provisions (SSP) for the insurance requirements which must be met.
10. **REFERENCE STANDARDS:** Except as otherwise noted or specified, the Work shall be completed in accordance with the following standards:

Title	Edition	Document Number
Standard Specifications for Public Works Construction (“The GREENBOOK”) http://www.greenbookspecs.org/	2015	PWPI070116-01
City of San Diego Standard Specifications for Public Works Construction (“The WHITEBOOK”)* https://www.sandiego.gov/publicworks/edocref/greenbook	2015	PWPI070116-02
City of San Diego Standard Drawings* https://www.sandiego.gov/publicworks/edocref/standarddraw	2016	PWPI070116-03
Citywide Computer Aided Design and Drafting (CADD) Standards https://www.sandiego.gov/publicworks/edocref/drawings	2016	PWPI092816-04
California Department of Transportation (CALTRANS) Standard Specifications – http://www.dot.ca.gov/des/oe/construction-contract-standards.html	2015	PWPI092816-05
CALTRANS Standard Plans http://www.dot.ca.gov/des/oe/construction-contract-standards.html	2015	PWPI092816-06
California Manual on Uniform Traffic Control Devices Revision 1 (CA MUTCD Rev 1) - http://www.dot.ca.gov/trafficops/camutcd/	2014	PWPI092816-07
NOTE: *Available online under Engineering Documents and References at: http://www.sandiego.gov/publicworks/edocref/index.shtml		

11. **CITY'S RESPONSES AND ADDENDA:** The City, at its discretion, may respond to any or all questions submitted in writing via the City's eBidding web site in the **form of an addendum**. No other responses to questions, oral or written shall be of any force or effect with respect to this solicitation. The changes to the Contract Documents through addenda are made effective as though originally issued with the Bid. The Bidders shall acknowledge the receipt of Addenda at the time of bid submission.
12. **CITY'S RIGHTS RESERVED:** The City reserves the right to cancel the Notice Inviting Bids at any time, and further reserves the right to reject submitted Bids, without giving any reason for such action, at its sole discretion and without liability. Costs incurred by the Bidder(s) as a result of preparing Bids under the Notice Inviting Bids shall be the sole responsibility of each bidder. The Notice Inviting Bids creates or imposes no obligation upon the City to enter a contract.
13. **CONTRACT PRICING:** This solicitation is for a Lump Sum contract with Unit Price provisions as set forth herein. The Bidder agrees to perform construction services for the City of San Diego in accordance with these contract documents for the prices listed below. The Bidder further agrees to guarantee the Contract Price for a period of 120 days from the date of Bid opening. The duration of the Contract Price guarantee may be extended, by mutual consent of the parties, by the number of days required for the City to obtain all items necessary to fulfill all contractual conditions.
14. **SUBCONTRACTOR INFORMATION:**
 - 14.1. **LISTING OF SUBCONTRACTORS.** In accordance with the requirements provided in the "Subletting and Subcontracting Fair Practices Act" of the California Public Contract Code, the Bidder shall provide the **NAME** and **ADDRESS** of each Subcontractor who will perform work, labor, render services or who specially fabricates and installs a portion [type] of the work or improvement, in an amount in excess of 0.5% of the Contractor's total Bid. The Bidder shall also state within the description, whether the subcontractor is a **CONSTRUCTOR, CONSULTANT** or **SUPPLIER**. The Bidder shall further state within the description, the **PORTION** of the work which will be performed by each subcontractor under this Contract. The Contractor shall list only one Subcontractor for each portion of the Work. The **DOLLAR VALUE** of the total Bid to be performed shall be stated for all subcontractors listed. Failure to comply with this requirement may result in the Bid being rejected as **non-responsive** and ineligible for award. The Bidder's attention is directed to the Special Provisions - General; Paragraph 2-3, "Subcontracts", which stipulates the percent of the Work to be performed with the Bidders' own forces. The Bidder shall list all SLBE, ELBE, DBE, DVBE, MBE, WBE, OBE, SDB, WoSB, HUBZone, and SDVOSB Subcontractors for which Bidders are seeking recognition towards achieving any mandatory, voluntary (or both) subcontracting participation goals.

- 14.2. LISTING OF SUPPLIERS.** Any Bidder seeking the recognition of Suppliers of equipment, materials, or supplies obtained from third party Suppliers towards achieving any mandatory or voluntary (or both) subcontracting participation goals shall provide, at a minimum, the **NAME, LOCATION (CITY)** and the **DOLLAR VALUE** of each supplier. The Bidder will be credited up to 60% of the amount to be paid to the Suppliers for materials and supplies unless vendor manufactures or substantially alters materials and supplies, in which case, 100% will be credited. The Bidder is to indicate within the description whether the listed firm is a supplier or manufacturer. If no indication is provided, the listed firm will be credited at 60% of the listed dollar value for purposes of calculating the Subcontractor Participation Percentage.
- 14.3. LISTING OF SUBCONTRACTORS OR SUPPLIERS FOR ALTERNATES.** For subcontractors or suppliers to be used on additive or deductive alternate items, in addition to the above requirements, bidder shall further note "ALTERNATE" and alternate item number within the description.
- 15. SUBMITTAL OF "OR EQUAL" ITEMS:** See Section 4-1.6, "Trade Names or Equals" in The WHITEBOOK and as amended in the SSP.
- 16. AWARD:**
- 16.1.** The Award of this contract is contingent upon the Contractor's compliance with all conditions precedent to Award.
- 16.2.** Upon acceptance of a Bid, the City will prepare contract documents for execution within approximately 21 days of the date of the Bid opening and award the Contract approximately within 7 days of receipt of properly executed Contract, bonds, and insurance documents.
- 16.3.** This contract will be deemed executed and effective only upon the signing of the Contract by the Mayor or his designee and approval as to form the City Attorney's Office.
- 17. SUBCONTRACT LIMITATIONS:** The Bidder's attention is directed to Standard Specifications for Public Works Construction, Section 2-3, "SUBCONTRACTS" in The GREENBOOK and as amended in the SSP which requires the Contractor to self-perform not less than the specified amount. Failure to comply with this requirement shall render the bid **non-responsive** and ineligible for award.
- 18. AVAILABILITY OF PLANS AND SPECIFICATIONS:** Contract Documents may be obtained by visiting the City's website: <http://www.sandiego.gov/cip/>. Plans and Specifications for this contract are also available for review in the office of the City Clerk or Public Works Contracts.

- 19. ONLY ONE BID PER CONTRACTOR SHALL BE ACCEPTED:** No person, firm, or corporation shall be allowed to make, file, or be interested in more than one (1) Bid for the same work unless alternate Bids are called for. A person, firm or corporation who has submitted a sub-proposal to a Bidder, or who has quoted prices on materials to a Bidder, is not hereby disqualified from submitting a sub-proposal or quoting prices to other Bidders or from submitting a Bid in its own behalf. Any Bidder who submits more than one bid will result in the rejection of all bids submitted.
- 20. SAN DIEGO BUSINESS TAX CERTIFICATE:** The Contractor and Subcontractors, not already having a City of San Diego Business Tax Certificate for the work contemplated shall secure the appropriate certificate from the City Treasurer, Civic Center Plaza, First floor and submit to the Contract Specialist upon request or as specified in the Contract Documents. Tax Identification numbers for both the Bidder and the listed Subcontractors must be submitted on the City provided forms within these documents.
- 21. BIDDER'S GUARANTEE OF GOOD FAITH (BID SECURITY) FOR DESIGN-BID-BUILD CONTRACTS:**
- 21.1.** For bids \$250,000 and above, bidders shall submit Bid Security at bid time. Bid Security shall be in one of the following forms: a cashier's check, or a properly certified check upon some responsible bank; or an approved corporate surety bond payable to the City of San Diego for an amount of not less than 10% of the total bid amount.
- 21.2.** This check or bond, and the monies represented thereby, will be held by the City as a guarantee that the Bidder, if awarded the contract, will in good faith enter into the contract and furnish the required final performance and payment bonds.
- 21.3.** The Bidder agrees that in the event of the Bidder's failure to execute this contract and provide the required final bonds, the money represented by the cashier's or certified check will remain the property of the City; and the Surety agrees that it will pay to the City the damages, not exceeding the sum of 10% of the amount of the Bid, that the City may suffer as a result of such failure.
- 21.4.** At the time of bid submission, bidders must upload and submit an electronic PDF copy of the aforementioned bid security. Whether in the form of a cashier's check, a properly certified check or an approved corporate surety bond payable to the City of San Diego, the bid security must be uploaded to the City's eBidding system. Within twenty-four (24) hours after the bid due date and time, the first five (5) apparent low bidders must provide the City with the original bid security.

- 21.5.** Failure to submit the electronic version of the bid security at the time of bid submission AND failure to provide the original within twenty-four (24) hours may cause the bid to be rejected and deemed **non-responsive**.

22. AWARD OF CONTRACT OR REJECTION OF BIDS:

- 22.1.** This contract may be awarded to the lowest responsible and reliable Bidder.
- 22.2.** Bidders shall complete ALL eBid forms as required by this solicitation. Incomplete eBids will not be accepted.
- 22.3.** The City reserves the right to reject any or all Bids, to waive any informality or technicality in Bids received, and to waive any requirements of these specifications as to bidding procedure.
- 22.4.** Bidders will not be released on account of their errors of judgment. Bidders may be released only upon receipt by the City within 3 Working Days of the bid opening, written notice from the Bidder which shows proof of honest, credible, clerical error of a material nature, free from fraud or fraudulent intent; and of evidence that reasonable care was observed in the preparation of the Bid.
- 22.5.** A bidder who is not selected for contract award may protest the award of a contract to another bidder by submitting a written protest in accordance with the San Diego Municipal Code.
- 22.6.** The City of San Diego will not discriminate in the award of contracts with regard to race, religion creed, color, national origin, ancestry, physical handicap, marital status, sex or age.
- 22.7.** Each Bid package properly signed as required by these specifications shall constitute a firm offer which may be accepted by the City within the time specified herein.
- 22.8.** The City reserves the right to evaluate all Bids and determine the lowest Bidder on the basis of the base bid and any proposed alternates or options as detailed herein.

23. BID RESULTS:

- 23.1.** The availability of the bids on the City's eBidding system shall constitute the public announcement of the apparent low bidder. In the event that the apparent low bidder is subsequently deemed non-responsive or non-responsible, a notation of such will be made on the eBidding system. The new ranking and apparent low bidder will be adjusted accordingly.

23.2. To obtain the bid results, view the results on the City's web site, or request the results by U.S. mail and provide a self-addressed, stamped envelope. If requesting by mail, be sure to reference the bid name and number. The bid tabulations will be mailed to you upon their completion. The results will not be given over the telephone.

24. THE CONTRACT:

24.1. The Bidder to whom award is made shall execute a written contract with the City of San Diego and furnish good and approved bonds and insurance certificates specified by the City within 14 days after receipt by Bidder of a form of contract for execution unless an extension of time is granted to the Bidder in writing.

24.2. If the Bidder takes longer than 14 days to fulfill these requirements, then the additional time taken shall be added to the Bid guarantee. The Contract shall be made in the form adopted by the City, which includes the provision that no claim or suit whatsoever shall be made or brought by Contractor against any officer, agent, or employee of the City for or on account of anything done or omitted to be done in connection with this contract, nor shall any such officer, agent, or employee be liable hereunder.

24.3. If the Bidder to whom the award is made fails to enter into the contract as herein provided, the award may be annulled and the Bidder's Guarantee of Good Faith will be subject to forfeiture. An award may be made to the next lowest responsible and reliable Bidder who shall fulfill every stipulation embraced herein as if it were the party to whom the first award was made.

24.4. Pursuant to the San Diego City Charter section 94, the City may only award a public works contract to the lowest responsible and reliable Bidder. The City will require the Apparent Low Bidder to (i) submit information to determine the Bidder's responsibility and reliability, (ii) execute the Contract in form provided by the City, and (iii) furnish good and approved bonds and insurance certificates specified by the City within 14 Days, unless otherwise approved by the City, in writing after the Bidder receives notification from the City, designating the Bidder as the Apparent Low Bidder and formally requesting the above mentioned items.

24.5. The award of the Contract is contingent upon the satisfactory completion of the above-mentioned items and becomes effective upon the signing of the Contract by the Mayor or designee and approval as to form the City Attorney's Office. If the Apparent Low Bidder does not execute the Contract or submit required documents and information, the City may award the Contract to the next lowest responsible and reliable Bidder who shall fulfill every condition precedent to award. A corporation designated as the Apparent Low Bidder shall furnish

evidence of its corporate existence and evidence that the officer signing the Contract and bond for the corporation is duly authorized to do so.

- 25. EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE OF WORK:** The Bidder shall examine carefully the Project Site, the Plans and Specifications, other materials as described in the Special Provisions, Section 2-7, and the proposal forms (e.g., Bidding Documents). The submission of a Bid shall be conclusive evidence that the Bidder has investigated and is satisfied as to the conditions to be encountered, as to the character, quality, and scope of Work, the quantities of materials to be furnished, and as to the requirements of the Bidding Documents Proposal, Plans, and Specifications.
- 26. CITY STANDARD PROVISIONS:** This contract is subject to the following standard provisions. See The WHITEBOOK for details.
- 26.1.** The City of San Diego Resolution No. R-277952 adopted on May 20, 1991 for a Drug-Free Workplace.
 - 26.2.** The City of San Diego Resolution No. R-282153 adopted on June 14, 1993 related to the Americans with Disabilities Act.
 - 26.3.** The City of San Diego Municipal Code §22.3004 for Contractor Standards.
 - 26.4.** The City of San Diego's Labor Compliance Program and the State of California Labor Code §§1771.5(b) and 1776.
 - 26.5.** Sections 1777.5, 1777.6, and 1777.7 of the State of California Labor Code concerning the employment of apprentices by contractors and subcontractors performing public works contracts.
 - 26.6.** The City's Equal Benefits Ordinance (EBO), Chapter 2, Article 2, Division 43 of The San Diego Municipal Code (SDMC).
 - 26.7.** The City's Information Security Policy (ISP) as defined in the City's Administrative Regulation 90.63.
- 27. PRE-AWARD ACTIVITIES:**
- 27.1.** The contractor selected by the City to execute a contract for this Work shall submit the required documentation as specified in the herein and in the Notice of Award. Failure to provide the information as specified may result in the Bid being rejected as **non-responsive**.
 - 27.2.** The decision that bid is non-responsive for failure to provide the information required within the time specified shall be at the sole discretion of the City.

PERFORMANCE BOND, LABOR AND MATERIALMEN'S BOND

FAITHFUL PERFORMANCE BOND AND LABOR AND MATERIALMEN'S BOND:

Ortiz Corporation, a corporation, as principal, and Markel Insurance Company and SureTec Insurance Company as Co-Sureties, a corporation authorized to do business in the State of California, as Surety, hereby obligate themselves, their successors and assigns, jointly and severally, to The City of San Diego a municipal corporation in the sum of **Twenty One Million Eight Hundred Thirty Seven Thousand Two Hundred Eighty Seven Dollars and Twenty Cents (\$21,837,287.20)** for the faithful performance of the annexed contract, and in the sum of **Twenty One Million Eight Hundred Thirty Seven Thousand Two Hundred Eighty Seven Dollars and Twenty Cents (\$21,837,287.20)** for the benefit of laborers and materialmen designated below.

Conditions:

If the Principal shall faithfully perform the annexed contract with the City of San Diego, California, then the obligation herein with respect to a faithful performance shall be void; otherwise it shall remain in full force.

If the Principal shall promptly pay all persons, firms and corporations furnishing materials for or performing labor in the execution of this contract, and shall pay all amounts due under the California Unemployment Insurance Act then the obligation herein with respect to laborers and materialmen shall be void; otherwise it shall remain in full force.

The obligation herein with respect to laborers and materialmen shall inure to the benefit of all persons, firms and corporations entitled to file claims under the provisions of Article 2. Claimants, (iii) public works of improvement commencing with Civil Code Section 9100 of the Civil Code of the State of California.

Changes in the terms of the annexed contract or specifications accompanying same or referred to therein shall not affect the Surety's obligation on this bond, and the Surety hereby waives notice of same.

The Surety shall pay reasonable attorney's fees should suit be brought to enforce the provisions of this bond.

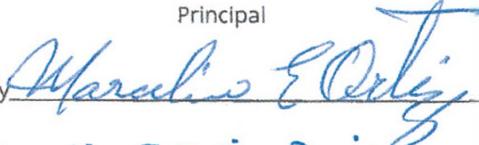
PERFORMANCE BOND, LABOR AND MATERIALMEN'S BOND (continued)

Dated November 15, 2017

Approved as to Form

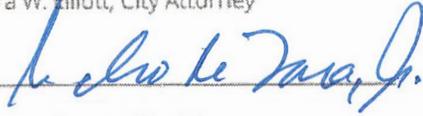
Ortiz Corporation

Principal

By 
Marcelino E. Ortiz - President

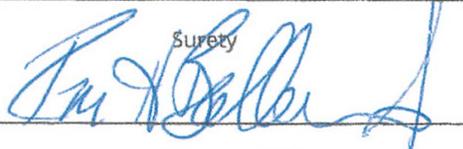
Printed Name of Person Signing for Principal

Mara W. Elliott, City Attorney

By 
Deputy City Attorney

Markel Insurance Company and
SureTec Insurance Company as Co-Sureties

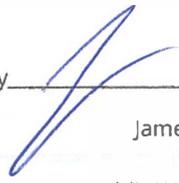
Surety

By 
Attorney-in-fact
Ron H. Ballard

Approved:

3131 Camino Del Rio North, Suite 1450

Local Address of Surety

By 
James Nagelvoort
Director
Public Works Department

San Diego, CA 92108

Local Address (City, State) of Surety

619-400-4100

Local Telephone No. of Surety

Premium \$ 123,051.00

Bond No. 4416572

Markel Insurance Company

LIMITED POWER OF ATTORNEY

Know All Men by These Presents, That MARKEL INSURANCE COMPANY (the "Company"), a corporation duly organized and existing under the laws of the State of Illinois, and having its principal administrative office in Glen Allen, Virginia, does by these presents make, constitute and appoint

Ron H. Ballard, Gloria S. Becerra, Dave B. Roalkvam, David Melman

its true and lawful Attorney-in-fact, with full power and authority hereby conferred in its name, place and stead, to execute, acknowledge and deliver any and all bonds, recognizances, undertakings of other instruments or contracts of suretyship to include waivers to the conditions of contracts and consents of surety for, providing the bond penalty does not exceed

Fifty Million and 00/100 Dollars (\$50,000,000.00)

and to bind the Company thereby as fully and to the same extent as if such bond were signed by the President, sealed with the corporate seal of the Company and duly attested by its Secretary, hereby ratifying and confirming all that the said Attorney-in-Fact may do in the premises. Said appointment shall continue in force until 1/31/2019 and is made under and by authority of the following resolution of the Board of Directors of Markel Insurance Company:

RESOLVED, that the President, any Senior Vice President, Vice President, Assistant Vice President, Secretary, Assistant Secretary or Assistant Treasurer shall be and is hereby vested with full power and authority to appoint any one or more suitable persons as Attorney(s)-in-Fact to represent and act for on behalf of the Company, subject to the following provisions:

Attorney-in-Fact may be given full power and authority for and in the name of and on behalf of the Company, to execute, acknowledge and deliver, any and all bonds, recognizances, contracts, agreements or indemnity and other conditional or obligatory undertakings and any and all notices and documents canceling or terminating the Company's liability thereunder, and any such instruments so executed by any such Attorney-in-Fact shall be binding upon the Company as if signed by the President and sealed and effected by the Secretary.

FURTHER RESOLVED, that the signature of any authorized officer and seal of the Company heretofore or hereafter affixed to any power of attorney or any certificate relating thereto by facsimile, and any power of attorney or certificate bearing facsimile signature or facsimile seal shall be valid and binding upon the Company with respect to any bond or undertaking to which it is attached.

In Witness Whereof, MARKEL INSURANCE COMPANY has caused these presents to be signed by its Senior Vice President, Mr. Robin Russo, and its corporate seal to be hereto affixed this 2nd day of November, 2017.

Commonwealth of Virginia
Henrico County

MARKEL INSURANCE COMPANY

By: [Signature]
Robin Russo, Senior Vice President

On this 2nd day of November, 2017 before me personally came Mr. Robin Russo, to me known, who being by me duly sworn, did depose and say that he resides in Henrico County, Virginia, the he is a Senior Vice President of MARKEL INSURANCE COMPANY, the company described in and which executed the above instrument; that he knows the seal of said Company; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said Company; and that he signed his name thereto by like order



Donna Strauss
Commonwealth of Virginia
Notary Public
Commission No. 7083968
My Commission Expires 1/31/2019

By: [Signature]
Ms. Donna Strauss

I, Richard R. Grinnan, Vice President and Secretary of MARKEL INSURANCE COMPANY, do hereby certify that the above and foregoing is true and correct copy of a Power of Attorney, executed by said Company, which is still in full force and effect; and, furthermore, the resolutions of the Board of Directors, set out in the Power of Attorney are in full force and effect.

Given under my hand and the seal of said Company at Glen Allen, Virginia this 15th day of NOVEMBER, 2017.

By: [Signature]
Richard R. Grinnan,
Vice President and Secretary

Any instrument issued in excess of the penalty stated above is totally void and without any validity.

For verification of the authority of this Power you may call (713) 812-0800 on any business day between 8:00 AM and 5:00 PM CST.

SureTec Insurance Company

LIMITED POWER OF ATTORNEY

Know All Men by These Presents, That SURETEC INSURANCE COMPANY (the "Company"), a corporation duly organized and existing under the laws of the State of Texas, and having its principal office in Houston, Harris County, Texas, does by these presents make, constitute and appoint

Ron H. Ballard

its true and lawful Attorney-in-fact, with full power and authority hereby conferred in its name, place and stead, to execute, acknowledge and deliver any and all bonds, recognizances, undertakings or other instruments or contracts of suretyship to include waivers to the conditions of contracts and consents of surety for:

Principal: Ortiz Corporation
Obligee: City of San Diego
Amount: \$ 21,837,287.20

and to bind the Company thereby as fully and to the same extent as if such bond were signed by the President, sealed with the corporate seal of the Company and duly attested by its Secretary, hereby ratifying and confirming all that the said Attorney-in-Fact may do in the premises. Said appointment is made under and by authority of the following resolutions of the Board of Directors of the SureTec Insurance Company:

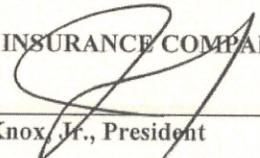
Be it Resolved, that the President, any Vice-President, any Assistant Vice-President, any Secretary or any Assistant Secretary shall be and is hereby vested with full power and authority to appoint any one or more suitable persons as Attorney(s)-in-Fact to represent and act for and on behalf of the Company subject to the following provisions:

Attorney-in-Fact may be given full power and authority for and in the name of and of behalf of the Company, to execute, acknowledge and deliver, any and all bonds, recognizances, contracts, agreements or indemnity and other conditional or obligatory undertakings and any and all notices and documents canceling or terminating the Company's liability thereunder, and any such instruments so executed by any such Attorney-in-Fact shall be binding upon the Company as if signed by the President and sealed and effected by the Corporate Secretary.

Be it Resolved, that the signature of any authorized officer and seal of the Company heretofore or hereafter affixed to any power of attorney or any certificate relating thereto by facsimile, and any power of attorney or certificate bearing facsimile signature or facsimile seal shall be valid and binding upon the Company with respect to any bond or undertaking to which it is attached. (Adopted at a meeting held on 20th of April, 1999.)

In Witness Whereof, SURETEC INSURANCE COMPANY has caused these presents to be signed by its President, and its corporate seal to be hereto affixed this 6th day of April, A.D. 2017.

SURETEC INSURANCE COMPANY

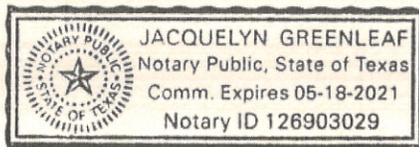
By: 
 John Knox, Jr., President

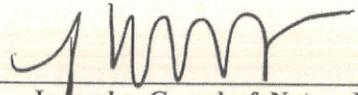
State of Texas
 County of Harris

ss:



On this 6th day of April, A.D. 2017 before me personally came John Knox, Jr., to me known, who, being by me duly sworn, did depose and say, that he resides in Houston, Texas, that he is President of SURETEC INSURANCE COMPANY, the company described in and which executed the above instrument; that he knows the seal of said Company; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said Company; and that he signed his name thereto by like order.




 Jacquelyn Greenleaf, Notary Public
 My commission expires May 18, 2021

I, M. Brent Beaty, Assistant Secretary of SURETEC INSURANCE COMPANY, do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney, executed by said Company, which is still in full force and effect; and furthermore, the resolutions of the Board of Directors, set out in the Power of Attorney are in full force and effect.

Given under my hand and the seal of said Company at Houston, Texas this 15th day of NOVEMBER 2017, A.D.


 M. Brent Beaty, Assistant Secretary

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document, to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California

County of San Diego

On November 15, 2017 before me, Ruth Alonso, Notary Public

personally appeared Ron H. Ballard

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/~~she~~/they executed the same in his/~~her~~/their authorized capacity(ies), and that by his/~~her~~/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.



Ruth Alonso

Signature of Notary

OPTIONAL

Though the data below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent reattachment of this form.

CAPACITY CLAIMED BY SIGNER

- INDIVIDUAL
- CORPORATE OFFICER
- PARTNER(S)
- MEMBER of LLC
- ATTORNEY-IN-FACT
- TRUSTEE(S)
- GUARDIAN/CONSERVATOR

OTHER: _____

DESCRIPTION OF ATTACHED DOCUMENT

Bond 4416572 – Ortiz Corporation
Title or Type of Document

Number of Pages

November 15, 2017
Date of Document

SIGNER IS REPRESENTING:
NAME OF PERSON(S) OR ENTITY(IES)

Signer(s) other than named above

Markel Insurance Company and SureTec Insurance Company as Co-Sureties

ATTACHMENTS

ATTACHMENT A
SCOPE OF WORK

SCOPE OF WORK

- 1. SCOPE OF WORK:** This project consists of the replacement of approximately 26,968 existing water mains with new 8-inch, 12-inch, 16-inch, 24-inch, 30-inch, 36-inch and 42-inch water mains. Removal of existing pressure regulating station and installation of a new pressure regulating station, installation of concrete vaults within Caltrans right of way, trenchless construction within MTS Limits of Operation, street resurfacing, curb ramps, and all other incidental work.

The scope of work also includes new storm drain inlets and pipes associated with the curb ramp improvements at the intersection of 30th Street and Redwood Street, and all other incidental work.

- 1.1** The Work shall be performed in accordance with:

- 1.1.1.** The Notice Inviting Bids and Plans numbered **38145-01-D** through **38145-111-D**, **38145-T01-D** through **38145-T62-D**, and **38362-01-D** through **38362-7-D**, inclusive.

- 2. ESTIMATED CONSTRUCTION COST:** The City's estimated construction cost for 30th Street Pipeline Replacement is **\$22,300,000**.
- 3. LOCATION OF WORK: The Location of Work is as follow:**

See Appendix E "**Location Map**".
- 4. CONTRACT TIME:** The Contract Time for completion of the Work, shall be **610 Working Days**.

ATTACHMENT B
PHASED FUNDING PROVISIONS

PHASED FUNDING PROVISIONS

1. PRE-AWARD

- 1.1.** Within 10 Working Days after the Bid Opening date, the Apparent Low Bidder must contact the Project Manager to discuss fund availability for each phase and shall also submit the following:
 - 1.1.1.** Construction Cost Loaded Schedule in accordance with 6-1, "CONSTRUCTION SCHEDULE AND COMMENCEMENT OF THE WORK" and 9-3, "PAYMENT."
- 1.2.** Your failure to perform any of the following may result cancelling your award of the Contract:
 - 1.2.1.** Meeting with the City's Project Manager to discuss the Phased Funding Schedule.
 - 1.2.2.** Agreeing to a Phased Funding Schedule within 22 Working Days after meeting with the City's Project Manager.

2. POST-AWARD

- 2.1.** Do not start any construction activities for the next phase until the NTP has been issued by the Engineer. The City will issue separate Notice to Proceed (NTP) documents for each phase.
- 2.2.** If requested, the Engineer may issue the NTP for the next phase before the end of the current approved phase.

PHASED FUNDING SCHEDULE AGREEMENT

The particulars left blank in this sample, such as the total number of phases and the amounts assigned to each phase, will be completed with funding specific information from the Pre-Award Schedule and Construction Cost Loaded Schedule submitted to and approved by the City.

BID NUMBER: K-18-1517-DBB-3-A

CONTRACT OR TASK TITLE: 30th Street Pipeline Replacement and Redwood & 30th CR Obstruction DS

CONTRACTOR: Ortiz Corporation

Funding Phase	Phase Description	Phase Start	Phase Finish	Not-to-Exceed Amount
1	Work to be completed in Phase 1 shall include, Bonds, Mobilization, Video taping of conditions, Installation of 1.0 miles (minimum) Water Mains.	Notice to Proceed	9/30/18	<u>30th Street Pipeline Replacement (S12010)</u> \$5,100,000.00 <u>Redwood & 30th CR Obstruction DS (B13066)</u> \$0.00
2	Work to be completed in Phase 2 shall include the installation of 2.0 miles (minimum) of Water Mains.	10/1/18	9/30/19	<u>30th Street Pipeline Replacement (S12010)</u> \$8,950,000.00 <u>Redwood & 30th CR Obstruction DS (B13066)</u> \$512,783.90
3	Work to be completed in Phase 3 shall include the remaining of the construction activities associated with the contract and specifications.	10/1/19	Notice of Completion	<u>30th Street Pipeline Replacement (S12010)</u> \$7,274,503.30 <u>Redwood & 30th CR Obstruction DS (B13066)</u> \$0.00
Contract Total				\$21,837,287.20

Notes:

- 1) WHITEBOOK section 9-3.6, "Phased Funding Compensation" applies.
- 2) The total of all funding phases shall be equal to the TOTAL BID PRICE as shown on BID SCHEDULE 1 - PRICES.
- 3) This PHASED FUNDING SCHEDULE AGREEMENT will be incorporated into the CONTRACT and shall only be revised by written modifications to the CONTRACT.

CITY OF SAN DIEGO

PRINT NAME: Clemens Wassenberg
Construction Manager

Signature: C. Wassenberg

Date: 11/21/17

PRINT NAME: Jaime Ramos
Project Manager

Signature: Spouse for J. Ramos

Date: 11/21/17

CONTRACTOR

PRINT NAME: Ortiz Corporation

Title: President

Signature: Marcos E. Ortiz

Date: November 21, 2017

ATTACHMENT C
INTENTIONALLY LEFT BLANK

ATTACHMENT D
PREVAILING WAGES

1. **PREVAILING WAGE RATES:** Pursuant to San Diego Municipal Code section 22.3019, construction, alteration, demolition, repair and maintenance work performed under this Contract is subject to State prevailing wage laws. For construction work performed under this Contract cumulatively exceeding \$25,000 and for alteration, demolition, repair and maintenance work performed under this Contract cumulatively exceeding \$15,000, the Contractor and its subcontractors shall comply with State prevailing wage laws including, but not limited to, the requirements listed below.
 - 1.1. **Compliance with Prevailing Wage Requirements.** Pursuant to sections 1720 through 1861 of the California Labor Code, the Contractor and its subcontractors shall ensure that all workers who perform work under this Contract are paid not less than the prevailing rate of per diem wages as determined by the Director of the California Department of Industrial Relations (DIR). This includes work performed during the design and preconstruction phases of construction including, but not limited to, inspection and land surveying work.
 - 1.1.1. Copies of such prevailing rate of per diem wages are on file at the City and are available for inspection to any interested party on request. Copies of the prevailing rate of per diem wages also may be found at <http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>. Contractor and its subcontractors shall post a copy of the prevailing rate of per diem wages determination at each job site and shall make them available to any interested party upon request.
 - 1.1.2. The wage rates determined by the DIR refer to expiration dates. If the published wage rate does not refer to a predetermined wage rate to be paid after the expiration date, then the published rate of wage shall be in effect for the life of this Contract. If the published wage rate refers to a predetermined wage rate to become effective upon expiration of the published wage rate and the predetermined wage rate is on file with the DIR, such predetermined wage rate shall become effective on the date following the expiration date and shall apply to this Contract in the same manner as if it had been published in said publication. If the predetermined wage rate refers to one or more additional expiration dates with additional predetermined wage rates, which expiration dates occur during the life of this Contract, each successive predetermined wage rate shall apply to this Contract on the date following the expiration date of the previous wage rate. If the last of such predetermined wage rates expires during the life of this Contract, such wage rate shall apply to the balance of the Contract.
 - 1.2. **Penalties for Violations.** Contractor and its subcontractors shall comply with California Labor Code section 1775 in the event a worker is paid less than the prevailing wage rate for the work or craft in which the worker is employed.

- 1.3. Payroll Records.** Contractor and its subcontractors shall comply with California Labor Code section 1776, which generally requires keeping accurate payroll records, verifying and certifying payroll records, and making them available for inspection. Contractor shall require its subcontractors to also comply with section 1776. Contractor and its subcontractors shall submit weekly certified payroll records online via the City's web-based Labor Compliance Program. Contractor is responsible for ensuring its subcontractors submit certified payroll records to the City.
- 1.3.1.** For contracts entered into on or after April 1, 2015, Contractor and their subcontractors shall furnish records specified in Labor Code section 1776 directly to the Labor Commissioner in the manner required by Labor Code section 1771.4.
- 1.4. Apprentices.** Contractor and its subcontractors shall comply with California Labor Code sections 1777.5, 1777.6 and 1777.7 concerning the employment and wages of apprentices. Contractor is held responsible for the compliance of their subcontractors with sections 1777.5, 1777.6 and 1777.7.
- 1.5. Working Hours.** Contractor and their subcontractors shall comply with California Labor Code sections 1810 through 1815, including but not limited to: (i) restrict working hours on public works contracts to eight hours a day and forty hours a week, unless all hours worked in excess of 8 hours per day are compensated at not less than 1½ times the basic rate of pay; and (ii) specify penalties to be imposed on design professionals and subcontractors of \$25 per worker per day for each day the worker works more than 8 hours per day and 40 hours per week in violation of California Labor Code sections 1810 through 1815.
- 1.6. Required Provisions for Subcontracts.** Contractor shall include at a minimum a copy of the following provisions in any contract they enter into with a subcontractor: California Labor Code sections 1771, 1771.1, 1775, 1776, 1777.5, 1810, 1813, 1815, 1860 and 1861.
- 1.7. Labor Code Section 1861 Certification.** Contractor in accordance with California Labor Code section 3700 is required to secure the payment of compensation of its employees and by signing this Contract, Contractor certifies that "I am aware of the provisions of Section 3700 of the California Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this Contract."
- 1.8. Labor Compliance Program.** The City has its own Labor Compliance Program authorized in August 2011 by the DIR. The City will withhold contract payments when payroll records are delinquent or deemed inadequate by the City or other

governmental entity, or it has been established after an investigation by the City or other governmental entity that underpayment(s) have occurred. For questions or assistance, please contact the City of San Diego's Equal Opportunity Contracting Department at 619-236-6000.

1.9. Contractor and Subcontractor Registration Requirements. This project is subject to compliance monitoring and enforcement by the DIR. As of March 1, 2015, no contractor or subcontractor may be listed on a bid or proposal for a public works project unless registered with the DIR pursuant to Labor Code section 1725.5. As of April 1, 2015, a contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, or enter into any contract for public work, unless currently registered and qualified to perform public work pursuant to Labor Code section 1725.5. By submitting a bid or proposal to the City, Contractor is certifying that he or she has verified that all subcontractors used on this public work project are registered with the DIR in compliance with Labor Code sections 1771.1 and 1725.5, and Contractor shall provide proof of registration to the City upon request.

1.9.1. A Contractor's inadvertent error in listing a subcontractor who is not registered pursuant to Labor Code section 1725.5 in response to a solicitation shall not be grounds for filing a bid protest or grounds for considering the bid non-responsive provided that any of the following apply: (1) the subcontractor is registered prior to bid opening; (2) within twenty-four hours after the bid opening, the subcontractor is registered and has paid the penalty registration fee specified in Labor Code section 1725.5; or (3) the subcontractor is replaced by another registered subcontractor pursuant to Public Contract Code section 4107.

ATTACHMENT E
SUPPLEMENTARY SPECIAL PROVISIONS

SUPPLEMENTARY SPECIAL PROVISIONS

The following Supplementary Special Provisions (SSP) modifies the following documents:

1. The **2015 Edition** of the Standard Specifications for Public Works Construction (The "GREENBOOK") currently in effect.
2. The **2015 Edition** of the City of San Diego Standard Specifications for Public Works Construction (The "WHITEBOOK").
 - a) General Provisions (A) for all Contracts.

SECTION 1 – TERMS, DEFINITIONS, ABBREVIATIONS, UNITS OF MEASURE, AND SYMBOLS

- 1-2 TERMS AND DEFINITIONS.** To the "WHITEBOOK", item 54, "Normal Working Hours", ADD the following:

The **Normal Working Hours** are 9:00 PM to 5:00 AM.

SECTION 2 - SCOPE AND CONTROL OF WORK

- 2-3.2 Self Performance.** To the "GREENBOOK", DELETE in its entirety and SUBSTITUTE with the following:

1. You shall perform, with your own organization, Contract Work amounting to at least **50%** of the base Bid **AND 50%** of any alternates.

- 2-14.3 Coordination.** To the "WHITEBOOK", ADD the following:

2. Other adjacent City projects are scheduled for construction for the same time period in the vicinity of 30th Street Pipeline Replacement. See **Appendix "F"** for the approximate location. Coordinate the Work with the adjacent projects as listed below:
 - a) Otay 1st and 2nd Pipelines West of Highland Avenue, Gabriel Torres, 619-533-5630
 - b) Upas Street Replacement Pipeline, Alice Altes, 619-533-4105
 - c) University Avenue Mobility Project, Jayna Straughn, 619-533-5216
 - d) Sewer Group Job 697A, Elham Lotfi, 619-533-5212

- e) Sewer & Storm Drain Job 828, Bijan Shakiba, 619-533-5191
- f) Sewer Lateral Rehab Project J-2, Maryam Liaghat, 619-533-5192
- g) Lincoln Ave (30th to Wabash Ave), Ali Alaeipour, 619-533-5141
- h) Lincoln Ave UUD, Jie Xiao, 619-533-5496
- i) 31st Street UUD (Market – L St.), Jie Xiao, 619-533-5496
- j) 30th Street Phase IIIB Undergrounding, Farlito Valenzuela, 619-235-1947
- k) Howard Ave UUD (Park Bl – I805), Jie Xiao, 619-533-5496
- l) 28th Street UUD (Island Av - Clay Av), Jie Xiao, 619-533-5496
- m) City Street Lights GF GRP 15 CD – 09a, Nitsuh Aberra, 619-533-3167
- n) Golden Hill and South Park SD Replacement, Craig Hoenes, 619-533-3783

2-15 TECHNICAL STUDIES AND DATA. To the “WHITEBOOK”, ADD the following:

- 3. In preparation of the Contract Documents, the designer has relied upon the following reports of explorations and tests at the Work Site:
 - a) Report of Geotechnical Investigations dated November 9, 2015 by Allied Geotechnical Engineers
 - b) Soil Corrosivity Assessment dated November 9, 2015 by RF Yeager Engineering
 - c) Hazardous Materials Technical Study dated October 2015 by TTG Environmental
 - d) Cultural Resources Inventory dated October 2015 by Helix Environmental Planning
- 4. The reports listed above are available for review by contacting the Contract Specialist or visiting:

<https://filecloud.sandiego.gov/url/tyxwo0zoi0sv>

2-16 CONTRACTOR REGISTRATION AND ELECTRONIC REPORTING SYSTEM. To the “WHITEBOOK”, item 1, DELETE in its entirety.

SECTION 3 – CHANGES IN WORK

3-5.1 **Claims.** To the “WHITEBOOK”, DELETE in its entirety and SUBSTITUTE with the following:

ADD:

3-5.1 **Claims.**

1. A Claim is a written demand by you that seeks an adjustment in the Contract Price, Contract Time, or other relief associated with a dispute arising under or relating to the Contract, including a breach of any provision thereof. A voucher, invoice, or other routine request for payment is not a Claim.
2. A Claim shall conform to these specifications and may be considered after the City has previously denied a request by you for a Change Order seeking the demanded relief.
3. You shall submit a Claim to the Engineer if a dispute occurs that arises from or relates to the Contract. The Claim shall seek all relief to which you assert you are entitled as a result of the event(s) giving rise to the dispute. Your failure to process a Claim in accordance with these specifications shall constitute a waiver of all relief associated with the dispute. Claims are subject to 6-11, “Right to Audit”.
4. You shall continue to perform the Services and Work and shall maintain the Schedule during any dispute proceedings. The Engineer will continue to make payments for undisputed Services and Work.
5. The City’s Claims process specified herein shall not relieve you of your statutory obligations to present claims prior to any action under the California Government Code.

3-5.1.1 **Initiation of Claim.**

1. You shall promptly, but no later than 30 Days after the event(s) giving rise to the Claim, deliver the Claim to the Engineer.
2. You shall not process a Claim unless the Engineer has previously denied a request by you for a Change Order that sought the relief to be pursued in the claim.

3-5.1.1.1 **Claim Certification Submittal.**

1. If your Claim seeks an increase in the Contract Price, the Contract Time, or both, submit with the Claim an affidavit certifying the following:
 - a) The Claim is made in good faith and covers all costs and delays to which you are entitled as a result of the event(s) giving rise to the Claim.

- b) The amount claimed accurately reflects the adjustments in the Contract Price, the Contract Time, or both to which you believe you are entitled.
- c) All supporting costs and pricing data are current, accurate, and complete to the best of your knowledge. The cost breakdown per item of Work shall be supplied.
- d) You shall ensure that the affidavit is executed by an official who has the authority to legally bind you.

3-5.1.2 Initial Determination.

- 1. The Engineer will respond in writing to your Claim within 30 Days of receipt of the Claim.

3-5.1.3 Settlement Meeting.

- 1. If you disagree with the Initial Determination, you shall request a Settlement Meeting within 30 Days. Upon receipt of this request, the Engineer will schedule the Settlement Meeting within 15 Working Days.

3-5.1.7 City's Final Determination.

- 1. If a settle agreement is not reached, the City shall make a written Final Determination within 10 Working Days after the Settlement Meeting.
- 2. If you disagree with the City's Final Determination, notify the Engineer in writing of your objection within 15 Working Days after receipt of the written determination and file a "Request for Mediation" in accordance with 3-5.2, "Dispute Resolution Process".
- 3. Failure to give notice of objection within the 15 Working Days period shall waive your right to pursue the Claim.

3-5.1.8 Mandatory Assistance.

- 1. If a third party dispute, litigation, or both arises out of or relates in any way to the Services provided under the Contract, upon the City's request, you shall agree to assist in resolving the dispute or litigation. Your assistance includes, but is not limited to the following:
 - a) Providing professional consultations.
 - b) Attending mediations, arbitrations, depositions, trials, or any event related to the dispute resolution and litigation.

3-5.1.8.1 Compensation for Mandatory Assistance.

- 1. The City will reimburse you for reasonable fees and expenses incurred by you for any required assistance rendered in accordance with 3-5.1.8, "Mandatory Assistance" as Extra Work.
- 2. The Engineer will determine whether these fees and expenses were necessary due to your conduct or failure to act.

3. If the Engineer determines that the basis of the dispute or litigation in which these fees and expenses were incurred were the result of your conduct or your failure to act in part or in whole, you shall reimburse the City for any payments made for these fees and expenses.
4. Reimbursement may be through any legal means necessary, including the City's withholding of your payment.

3-5.2.3 Selection of Mediator. To the "WHITEBOOK", DELETE in its entirety and SUBSTITUTE with the following:

1. A single mediator, knowledgeable in construction aspects and acceptable to both parties, shall be used to mediate the dispute.
2. To initiate mediation, the initiating party shall serve a Request for Mediation at the American Arbitration Association (AAA) on the opposing party.
3. If AAA is used, the initiating party shall concurrently file with AAA a "Request for Mediation" along with the appropriate fees, a copy of requested mediators marked in preference order, and a preference for available dates.
4. If AAA is selected to coordinate the mediation (Administrator), within 10 Working Days from the receipt of the initiating party's Request for Mediation, the opposing party shall file the following:
 - a) A copy of the list of the preferred mediators listed in preference order after striking any mediators to which they have any objection.
 - b) A preference for available dates.
 - c) Appropriate fees.
5. If the parties cannot agree on a mediator, then each party shall select a mediator and those mediators shall select the neutral third party to mediate the matter.

3-5.3 Forum of Litigation. To the "WHITEBOOK", DELETE in its entirety and SUBSTITUTE with the following:

1. It is the express intention that all legal actions and proceedings related to the Contract or Agreement with the City or to any rights or any relationship between the parties arising therefrom shall be solely and exclusively initiated and maintained in courts of the State of California for the County of San Diego.

SECTION 4 - CONTROL OF MATERIALS

4-1.3.1 General. To the "WHITEBOOK", ADD the following: `

1. Steel pipe in sizes larger than 18 inches shall require inspection at the source of production.
2. City lab staff or a qualified inspection agency approved by the Engineer shall witness all welding, lining, coating, and testing. You shall incur additional inspection costs outlined in 4-1.3.3, "Inspection of Items Not Locally Produced".
3. All parts of production (including but not limited to product fabrication, welding, testing, lining, and coating of straight pieces and specials) shall be performed or produced in the United States. There are no domestic material source requirements in this contract.
4. Welding and all testing shall be performed by certified welders and testing staff with credentials traceable in the United States.

4-1.3.2 Inspection by the Agency. To the "GREENBOOK", DELETE in its entirety and SUBSTITUTE with the following:

1. The City will provide inspection and testing laboratory services within the continental United States within a 200-mile radius of the geographical limits of the City.

4-1.3.3 Inspection of Items Not Locally Produced. To the "WHITEBOOK", DELETE in its entirety.

ADD:

4-1.3.3 Inspection of Items Not Locally Produced. To the "GREENBOOK", DELETE in its entirety and SUBSTITUTE with the following:

1. When you intend to purchase materials, fabricated products, or equipment from sources located more than 200 miles (321.9 km) outside the geographical limits of the City, City Lab staff or a qualified inspection agency approved by the Engineer, shall be engaged at your expense to inspect the materials, equipment, or process.
2. This approval shall be obtained before producing any material or equipment. City Lab staff or inspector shall evaluate the materials for conformance with the requirements of the Plans and Specifications. You shall forward reports required by the Engineer. No materials or equipment shall be shipped nor shall any processing, fabrication or treatment of such materials be done without proper inspection by City Lab staff or the approved agent. Approval by said agent shall not relieve you of responsibility for complying with the requirements of the Contract Documents.

3. The Engineer may elect City Lab staff to perform inspection of an out-of-town manufacturer. You shall incur additional inspection costs of the Engineer including lodging, meals, and incidental expenses based on Federal Per Diem Rates, along with travel and car rental expenses. If the manufacturing plant operates a double shift, a double shift shall be figured in the inspection costs.
 - a) At the option of the Engineer, full time inspection shall continue for the length of the manufacturing period. If the manufacturing period will exceed 3 consecutive weeks, you shall incur additional inspection expenses of the Engineer's supervisor for a trip of 2 Days to the site per month.
 - b) When the Engineer elects City Lab staff to perform out-of-town inspections, the wages of staff employed by the City shall not be part of the additional inspection expenses paid by you.
 - c) Federal Per Diem Rates can be determined at the location below:

<https://www.gsa.gov/portal/content/104877>

4-1.3.5 Special Inspection. To the "WHITEBOOK", DELETE in its entirety and SUBSTITUTE with the following:

1. Special inspection and testing by the Special Inspectors must meet the minimum requirements of the building codes specified in the Contract Documents.
2. Contractor Responsibilities:
 - a) You must notify the Special Inspector prior to performing any item of Work that requires Special Inspection and must review the Contract Documents and perform any necessary preparatory Work at the Site.
 - b) You are responsible for providing the Special Inspector access to Plans and Specifications at the Project's Site.
 - c) You are responsible for retaining at the Site all Special Inspection records submitted by the Special Inspector and providing these records for review by the Engineer upon request.
 - d) You must not perform any items of Work that requires Special Inspection without the presence of the Special Inspector(s) during the performance of that Work. Work requiring continuous inspection performed without Special Inspection is subject to removal.
 - e) You must employ a sufficient number of Special Inspectors to assure inspection of all Work requiring Special Inspection without hindering the progress of the Work.
 - f) Special Inspector must comply with all requirements of the Engineer and the building permit.

- iii. Report on how nonconforming items were resolved or unresolved as applicable; and
 - iv. Itemized changes authorized by the Engineer if not included in nonconformance items.
- g) The Special Inspector must submit a final signed report to the Engineer stating that Work requiring Special Inspection and testing were inspected, tested and reported, and to the best of Special Inspector's knowledge, is in conformance with the approved drawings and Contract Documents, approved revisions and the applicable workmanship provisions of the building codes whichever is in effect on the permitted Plans. Items not in conformance, unresolved items or any discrepancies in inspection coverage (i.e., missed inspections, periodic inspections when continuous was required, etc.) must be specifically itemized in this report.
- h) Final inspection of the structure will not be scheduled until the final report for all Work items requiring Special Inspection have been reviewed and approved by the Engineer.
4. The payment for special inspection Work specified under this section shall be paid in accordance with 4-1.3.4.1, "Payment".

4-1.3.6 Preapproved Materials. To the "WHITEBOOK", ADD the following:

3. You shall submit in writing a list of all products to be incorporated in the Work that are on the AML.
- <https://www.sandiego.gov/publicworks/edocref>

4-1.6 Trade Names or Equals. To the "WHITEBOOK", ADD the following:

11. You shall submit your list of proposed substitutions for an "equal" item **no less than 15 Working Days prior to the Bid due date** and on the City's Product Submittal Form available at:
- <http://www.sandiego.gov/publicworks/edocref/index.shtml>

SECTION 5 - UTILITIES

5-2 PROTECTION. To the "WHITEBOOK", item 2, ADD the following:

- g) Refer to **Appendix "N"** for more information on the protection of AMI devices.

5-6 COOPERATION. To the "GREENBOOK", ADD the following:

1. Notify SDG&E at least 10 Working Days prior to excavating within 10 feet of SDG&E Underground High Voltage Transmission Power Lines (69 KV and higher).

5-6.1 Utility Relocation and Contractor-Arranged Time for Relocation. To the WHITEBOOK, ADD the following:

Installation of the utilities shown in the following table requires coordination with your activities. Make arrangements with the utility company through the Resident Engineer and submit a schedule to the Resident Engineer.

1. Verified by the utility company.

Allowing at least the time shown for the utility owner to complete its work. The following is for associated Work on sheets 38145-1-D to 38145-111-D						
Utility	Contact	Location of Utility	Owner	Stage of Construction Prior to Utility Work	Type of Work to be Conducted by Utilities	N/W
Gas	Keenon Holmes Kholmes@SempraUtilities.com 858-654-8602	1 ½-inch gas main along 30 th Street just south of Commercial Street	SDG&E	Prior to Trenchless Work	Relocate Gas main to avoid trenchless work	30/5

The following is for associated Work on sheets 38632-1-D to 38632-7-D. Crown Castle Fiber Optic and Node, SDG&E's gas and electric relocation drawings are in Appendix "P" *						
Utility	Contact	Location of Utility	Owner	Stage of Construction Prior to Utility Work	Type of Work to be Conducted by Utilities	N/W
Gas	Keenon Holmes Kholmes@SempraUtilities.com 858-654-8602	GV and main 10+94 to 11+25, svc at 11+81 Redwood Street	SDG&E	Prior to Excavation of North Side of Intersection	Relocate Gas main on Northside of Intersection	30/5
Electric	Keenon Holmes Kholmes@SempraUtilities.com 858-654-8602	Redwood Street: 10+95 to 11+21, 11+55 to 11+85 30 th Street: 10+96 to 11+28 and 11+55 to 11+83	SDG&E	Prior to Excavation on West Side of Intersection	Relocate Electric Cable on West Side of Intersection	30/5
Fiber Optic and Node	Erin Hiney Erin.Hiney@crowncastle.com 206-707-2736	Redwood Street: Entire limit of work 30 th Street: 11+17 to 11+61	Crown Castle	Signal Pole Removal and Prior to Excavation on South Side of Intersection	Remove Node Bal04 on Signal Pole, Lower Existing Micro Trench	30/5

*Stations are approximate based on the best available as-builts on Redwood and 30th Street, exact limits of relocation of existing utility shall be determined by owner.

- N. Notification days. Minimum number of working days written notice the Resident Engineer provides the owner that the site will be ready for utility work.
- W. Working days. Number of working days provided to the utility company to complete the listed utility work

SECTION 6 - PROSECUTION, PROGRESS AND ACCEPTANCE OF WORK

6-1.2.1 Construction Phasing. To the "WHITEBOOK", ADD the following:

- 2. Changes to the construction phasing plan as described below and as shown in **Appendix "O"** shall be approved by the Resident Engineer and the City's Water Operation's Department.

Pipeline Segment	Description of Construction Phase	Waiver to 16-inch and Larger Shutdown Moratorium?
A	<ul style="list-style-type: none"> • 36-inch Transmission Main and Parallel 12-inch Distribution Main along 30th Street from Polk Ave to Upas St 	<ul style="list-style-type: none"> • Yes, but the tie-ins at Polk Ave, University Ave, and Upas St must be completed in 10 hours or less.
B	<ul style="list-style-type: none"> • 36-inch Transmission Main and Parallel 12-inch Distribution Main along Upas St from 30th Street to Ray St/30th St 	<ul style="list-style-type: none"> • No
C	<ul style="list-style-type: none"> • 42-inch Transmission and Parallel 12-inch Distribution Main along 30th St from Upas St to Thorn St • 42-inch Transmission Main along Thorn St from 30th St to 28th St • 536/390 Zone Pressure Regulating Station removal and relocation from 30th/Thorn St to 28th/Thorn St 	<ul style="list-style-type: none"> • No
D	<ul style="list-style-type: none"> • 16-inch Distribution Main along 30th St/Fern St from Thorn St to Elm St 	<ul style="list-style-type: none"> • Yes if built after Pipeline Segments A, B, and C • No if built before Pipeline Segments A, B, and C
E	<ul style="list-style-type: none"> • 16-inch Distribution Main along 30th St/Fern St from Elm St to Commercial St 	<ul style="list-style-type: none"> • Yes

- 3. No additional payment will be provided if the construction phasing plan described in Item 2 is not followed, which causes the waiver to the 16-inch and Larger Shutdown Moratorium to become voided.

ADD:

6-3.2.1.1 Environmental Document.

1. The City of San Diego Development Services Department has prepared a **Notice of Exemption** for Redwood & 30th CR Obstruction DS (30th Street Pipeline Replacement) and an **Addendum to A Mitigated Negative Declaration (AMND)** for 30th Street Pipeline Replacement Project as referenced in the Contract Appendix "A" You shall comply with all requirements of the NOE and AMND as set forth in Contract **Appendix A**.
2. Compliance with the City's environmental document shall be included in the Contract Price, unless separate bid items have been provided.

6-7.1 General. To the "WHITEBOOK", item 3, ADD the following:

- d) 30 Days for full depth asphalt final mill and resurfacing work required per SDG-107.
- e) Where shutdowns of 16 inch and larger pipes are required and a waiver has not been granted by the City of San Diego, there is a shutdown moratorium from May until October. Plan and schedule Work accordingly. No additional payment or Working Days will be granted for delays due to the moratorium.

6-8.3 Warranty. To the "WHITEBOOK", item 1, DELETE in its entirety and SUBSTITUTE with the following:

1. Warranty and repair all defective materials and workmanship for a period of 1 year. This call back warranty period shall start on the date that the Work was accepted by the City. Additionally, you shall warranty the Work against all latent and patent defects for a period of 10 years.

SECTION 7 - RESPONSIBILITIES OF THE CONTRACTOR

7-3 INSURANCE. To the "GREENBOOK", DELETE in its entirety and SUBSTITUTE with the following:

7-3 INSURANCE.

1. The insurance provisions herein shall not be construed to limit your indemnity obligations contained in the Contract.

7-3.1 Policies and Procedures.

1. You shall procure the insurance described below, at its sole cost and expense, to provide coverage against claims for loss including injuries to

persons or damage to property, which may arise out of or in connection with the performance of the Work by you, your agents, representatives, officers, employees or Subcontractors.

2. Insurance coverage for property damage resulting from your operations is on a replacement cost valuation. The market value will not be accepted.
3. You shall maintain this insurance for the duration of this Contract and at all times thereafter when you are correcting, removing, or replacing Work in accordance with this Contract. Your liabilities under the Contract, e.g., your indemnity obligations, is not deemed limited to the insurance coverage required by this Contract.
4. The payment for insurance shall be included in the Contract Price as bid by you. Except as specifically agreed to by the City in writing, you are not entitled to any additional payment. Do not begin any Work under this Contract until you have provided and the City has approved all required insurance.
5. Policies of insurance shall provide that the City is entitled to 30 Days (10 Days for cancellation due to non-payment of premium) prior written notice of cancellation or non-renewal of the policy. Maintenance of specified insurance coverage is a material element of the Contract. Your failure to maintain or renew coverage or to provide evidence of renewal during the term of the Contract may be treated by the City as a material breach of the Contract.

7-3.2 Types of Insurance.

7-3.2.1 Commercial General Liability Insurance.

1. Commercial General Liability Insurance shall be written on the current version of the ISO Occurrence form CG 00 01 07 98 or an equivalent form providing coverage at least as broad.
2. The policy shall cover liability arising from premises and operations, XCU (explosions, underground, and collapse), independent contractors, products/completed operations, personal injury and advertising injury, bodily injury, property damage, and liability assumed under an insured's contract (including the tort liability of another assumed in a business contract).
3. There shall be no endorsement or modification limiting the scope of coverage for either "insured vs. insured" claims or contractual liability. You shall maintain the same or equivalent insurance for at least 10 years following completion of the Work.

4. All costs of defense shall be outside the policy limits. Policy coverage shall be in liability limits of not less than the following:

<u>General Annual Aggregate Limit</u>	<u>Limits of Liability</u>
Other than Products/Completed Operations	\$2,000,000
Products/Completed Operations Aggregate Limit	\$2,000,000
Personal Injury Limit	\$1,000,000
Each Occurrence	\$1,000,000

7-3.2.2 Commercial Automobile Liability Insurance.

1. You shall provide a policy or policies of Commercial Automobile Liability Insurance written on the current version of the ISO form CA 00 01 12 90 or later version or equivalent form providing coverage at least as broad in the amount of \$1,000,000 combined single limit per accident, covering bodily injury and property damage for owned, non-owned, and hired automobiles (“Any Auto”).
2. All costs of defense shall be outside the limits of the policy.

7-3.2.3 Contractors Pollution Liability Insurance.

1. You shall procure and maintain at your expense or require your Subcontractor, as described below, to procure and maintain the Contractors Pollution Liability Insurance including contractual liability coverage to cover liability arising out of cleanup, removal, storage, or handling of hazardous or toxic chemicals, materials, substances, or any other pollutants by you or any Subcontractor in an amount not less than \$2,000,000 limit for bodily injury and property damage.
2. All costs of defense shall be outside the limits of the policy. Any such insurance provided by your Subcontractor instead of you shall be approved separately in writing by the City.
3. For approval of a substitution of your Subcontractor’s insurance, you shall certify that all activities for which the Contractors Pollution Liability Insurance will provide coverage will be performed exclusively by the Subcontractor providing the insurance. The deductible shall not exceed \$25,000 per claim.
4. Contractual liability shall include coverage of tort liability of another party to pay for bodily injury or property damage to a third person or organization. There shall be no endorsement or modification of the coverage limiting the scope of coverage for either “insured vs. insured” claims or contractual liability.

5. Occurrence based policies shall be procured before the Work commences and shall be maintained for the Contract Time. Claims Made policies shall be procured before the Work commences, shall be maintained for the Contract Time, and shall include a 12 month extended Claims Discovery Period applicable to this contract or the existing policy or policies that shall continue to be maintained for 12 months after the completion of the Work without advancing the retroactive date.
6. Except as provided for under California law, the policy or policies shall provide that the City is entitled to 30 Days prior written notice (10 Days for cancellation due to non-payment of premium) of cancellation or non-renewal of the policy or policies.

7-3.2.4 Contractors Hazardous Transporters Pollution Liability Insurance.

1. You shall provide at your expense or require your Subcontractor to provide, as described below, Contractors Hazardous Transporters Pollution Liability Insurance including contractual liability coverage to cover liability arising out of transportation of hazardous or toxic, materials, substances, or any other pollutants by you or any Subcontractor in an amount not less than \$2,000,000 limit per occurrence/aggregate for bodily injury and property damage.
2. All costs of defense shall be outside the limits of the policy. The deductible shall not exceed \$25,000 per claim. Any such insurance provided by a subcontractor instead of you shall be approved separately in writing by the City.
3. For approval of the substitution of Subcontractor's insurance the Contractor shall certify that all activities for which Contractors Hazardous Transporters Pollution Liability Insurance will provide coverage will be performed exclusively by the Subcontractor providing the insurance.
4. Contractual liability shall include coverage of tort liability of another party to pay for bodily injury or property damage to a third person or organization. There shall be no endorsement or modification of the coverage limiting the scope of coverage for either "insured vs. insured" claims or contractual liability. Occurrence based policies shall be procured before the Work commences and shall be maintained for the duration of this Contract. Claims Made policies shall be procured before the Work commences, shall be maintained for the duration of this contract, and shall include a 12 month extended Claims Discovery Period applicable to this contract or the existing policy or policies that shall continue to be maintained for 12 months after the completion of the Work under this Contract without advancing the retroactive date.
5. Except as provided for under California law, the policy or policies shall provide that the City is entitled to 30 Days prior written notice (10 Days

for cancellation due to non-payment of premium) of cancellation or non-renewal of the policy or policies.

7-3.2.6 Railroad Protective Liability Insurance. Exclusions relating to performance of operations within the vicinity of any railroad, bridge, trestle, roadbed, tunnel, underpass, or cross shall be deleted from all policies to which they may apply. Alternatively, you may provide separate Railroad Protective Liability insurance providing coverage, including endorsements, equivalent to that required for the CGL described herein.

7-3.3 Rating Requirements. Except for the State Compensation Insurance Fund, all insurance required by this Contract as described herein shall be carried only by responsible insurance companies with a rating of, or equivalent to, at least "A-, VI" by A.M. Best Company, that are authorized by the California Insurance Commissioner to do business in the State, and that have been approved by the City.

7-3.3.1 Non-Admitted Carriers. The City will accept insurance provided by non-admitted, "surplus lines" carriers only if the carrier is authorized to do business in the State and is included on the List of Approved Surplus Lines Insurers (LASLI list).

All policies of insurance carried by non-admitted carriers shall be subject to all of the requirements for policies of insurance provided by admitted carriers described herein.

7-3.4 Evidence of Insurance. Furnish to the City documents e.g., certificates of insurance and endorsements evidencing the insurance required herein, and furnish renewal documentation prior to expiration of this insurance. Each required document shall be signed by the insurer or a person authorized by the insurer to bind coverage on its behalf. We reserve the right to require complete, certified copies of all insurance policies required herein.

7-3.5 Policy Endorsements.

7-3.5.1 Commercial General Liability Insurance.

7-3.5.1.1 Additional Insured.

1. You shall provide at your expense policy endorsement written on the current version of the ISO Occurrence form CG 20 10 11 85 or an equivalent form providing coverage at least as broad.
2. To the fullest extent allowed by law e.g., California Insurance Code §11580.04, the policy shall be endorsed to include the City and its respective elected officials, officers, employees, agents, and representatives as additional insured.

3. The additional insured coverage for projects for which the Engineer's Estimate is \$1,000,000 or more shall include liability arising out of:
 - a) Ongoing operations performed by you or on your behalf,
 - b) your products,
 - c) your Work, e.g., your completed operations performed by you or on your behalf, or
 - d) premises owned, leased, controlled, or used by you.
4. The additional insured coverage for projects for which the Engineer's Estimate is less than \$1,000,000 shall include liability arising out of:
 - a) Ongoing operations performed by you or on your behalf,
 - b) your products, or
 - c) premises owned, leased, controlled, or used by you.

7-3.5.1.2 Primary and Non-Contributory Coverage. The policy shall be endorsed to provide that the coverage with respect to operations, including the completed operations, if appropriate, of the Named Insured is primary to any insurance or self-insurance of the City and its elected officials, officers, employees, agents and representatives. Further, it shall provide that any insurance maintained by the City and its elected officials, officers, employees, agents and representatives shall be in excess of your insurance and shall not contribute to it.

7-3.5.1.3 Project General Aggregate Limit. The policy or policies shall be endorsed to provide a Designated Construction Project General Aggregate Limit that will apply only to the Work. Only claims payments which arise from the Work shall reduce the Designated Construction Project General Aggregate Limit. The Designated Construction Project General Aggregate Limit shall be in addition to the aggregate limit provided for the products-completed operations hazard.

7-3.5.2 Commercial Automobile Liability Insurance.

7-3.5.2.1 Additional Insured. Unless the policy or policies of Commercial Auto Liability Insurance are written on an ISO form CA 00 01 12 90 or a later version of this form or equivalent form providing coverage at least as broad, the policy shall be endorsed to include the City and its respective elected officials, officers, employees, agents, and representatives as additional insured, with respect to liability arising out of automobiles owned, leased, hired or borrowed by you or on your behalf. This endorsement is limited to the obligations permitted by California Insurance Code §11580.04.

7-3.5.3 Contractors Pollution Liability Insurance Endorsements.

7-3.5.3.1 Additional Insured.

1. The policy or policies shall be endorsed to include as an Insured the City and its respective elected officials, officers, employees, agents, and representatives, with respect to liability arising out of:
 - a) Ongoing operations performed by you or on your behalf,
 - b) your products,
 - c) your work, e.g., your completed operations performed by you or on your behalf, or
 - d) premises owned, leased, controlled, or used by you.

Except that in connection with, collateral to, or affecting any construction contract to which the provisions of subdivision (b) of § 2782 of the California Civil Code apply, this endorsement shall not provide any duty of indemnity coverage for the active negligence of the City and its respective elected officials, officers, employees, agents, and representatives in any case where an agreement to indemnify the City and its respective elected officials, officers, employees, agents, and representatives would be invalid under subdivision (b) of §2782 of the California Civil Code.

2. In any case where a claim or loss encompasses the negligence of the Insured and the active negligence of the City and its respective elected officials, officers, employees, agents, and representatives that are not covered because of California Insurance Code §11580.04, the insurer's obligation to the City and its respective elected officials, officers, employees, agents, and representatives shall be limited to obligations permitted by California Insurance Code §11580.04.

7-3.5.3.2 Primary and Non-Contributory Coverage. The policy or policies shall be endorsed to provide that the insurance afforded by the Contractors Pollution Liability Insurance policy or policies is primary to any insurance or self-insurance of the City and its elected officials, officers, employees, agents and representatives with respect to operations including the completed operations of the Named Insured. Any insurance maintained by the City and its elected officials, officers, employees, agents and representatives shall be in excess of your insurance and shall not contribute to it.

7-3.5.3.3 Severability of Interest. For Contractors Pollution Liability Insurance, the policy or policies shall provide that your insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability and shall provide cross-liability coverage.

7-3.5.4 Contractors Hazardous Transporters Pollution Liability Insurance Endorsements.

7-3.5.4.1 Additional Insured.

1. The policy or policies shall be endorsed to include as an Insured the City and its respective elected officials, officers, employees, agents, and representatives, with respect to liability arising out of:
 - a) Ongoing operations performed by you or on your behalf,
 - b) your products,
 - c) your work, e.g., your completed operations performed by you or on your behalf, or
 - d) premises owned, leased, controlled, or used by you.

Except that in connection with, collateral to, or affecting any construction contract to which the provisions of subdivision (b) of §2782 of the California Civil Code apply, this endorsement shall not provide any duty of indemnity coverage for the active negligence of the City and its respective elected officials, officers, employees, agents, and representatives in any case where an agreement to indemnify the City and its respective elected officials, officers, employees, agents, and representatives would be invalid under subdivision (b) of §2782 of the California Civil Code.

2. In any case where a claim or loss encompasses the negligence of the Insured and the active negligence of the City and its respective elected officials, officers, employees, agents, and representatives that are not covered because of California Insurance Code §11580.04, the insurer's obligation to the City and its respective elected officials, officers, employees, agents, and representatives shall be limited to obligations permitted by California Insurance Code §11580.04.

7-3.5.4.2 Primary and Non-Contributory Coverage. The policy or policies shall be endorsed to provide that the insurance afforded by the Contractors Pollution Liability Insurance policy or policies is primary to any insurance or self-insurance of the City and its elected officials, officers, employees, agents and representatives with respect to operations including the completed operations of the Named Insured. Any insurance maintained by the City and its elected officials, officers, employees, agents and representatives shall be in excess of your insurance and shall not contribute to it.

7-3.5.4.3 Severability of Interest. For Contractors Hazardous Transporters Pollution Liability Insurance, the policy or policies shall provide that your insurance shall

apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability and shall provide cross-liability coverage.

7-3.6 Deductibles and Self-Insured Retentions. You shall pay for all deductibles and self-insured retentions. You shall disclose deductibles and self-insured retentions to the City at the time the evidence of insurance is provided.

7-3.7 Reservation of Rights. The City reserves the right, from time to time, to review your insurance coverage, limits, deductibles and self-insured retentions to determine if they are acceptable to the City. The City will reimburse you, without overhead, profit, or any other markup, for the cost of additional premium for any coverage requested by the Engineer but not required by this Contract.

7-3.8 Notice of Changes to Insurance. You shall notify the City 30 Days prior to any material change to the policies of insurance provided under this Contract.

7-3.9 Excess Insurance. Policies providing excess coverage shall follow the form of the primary policy or policies e.g., all endorsements.

7-3.10 Architects and Engineers Professional Insurance (Errors and Omissions Insurance).

1. For Contracts with required engineering services (e.g., Design-Build, preparation of engineered Traffic Control Plans (TCP), and etc) by you, you shall keep or require all of your employees or Subcontractors, who provide professional engineering services under this contract, Professional Liability coverage with a limit of \$**1,000,000** per claim and \$**2,000,000** annual aggregate in full force and effect.
2. You shall ensure the following:
 - a) The policy retroactive date is on or before the date of commencement of the Project.
 - b) The policy will be maintained in force for a period of 3 years after completion of the Project or termination of this Contract, whichever occurs last. You agree that for the time period specified above, there will be no changes or endorsements to the policy that affect the specified coverage.
3. If professional engineering services are to be provided solely by the Subcontractor, you shall:
 - a) Certify this to the City in writing and

- b) Agree in writing to require the Subcontractor to procure Professional Liability coverage in accordance with the REQUIREMENTS SET FORTH ABOVE.

7-4 **NOT USED.** To the "GREENBOOK", DELETE in its entirety and SUBSTITUTE with the following:

7-4 **WORKERS' COMPENSATION INSURANCE AND EMPLOYERS LIABILITY INSURANCE.**

1. In accordance with the provisions of §3700 of the California Labor Code, you shall provide at your expense Workers' Compensation Insurance and Employers Liability Insurance to protect you against all claims under applicable state workers compensation laws. The City, its elected officials, and employees will not be responsible for any claims in law or equity occasioned by your failure to comply with the requirements of this section.
2. Limits for this insurance shall be not less than the following:

<u>Workers' Compensation</u>	<u>Statutory Employers Liability</u>
Bodily Injury by Accident	\$1,000,000 each accident
Bodily Injury by Disease	\$1,000,000 each employee
Bodily Injury by Disease	\$1,000,000 policy limit

3. By signing and returning the Contract you certify that you are aware of the provisions of §3700 of the Labor Code which requires every employer to be insured against liability for worker's compensation or to undertake self-insurance in accordance with the provisions of that code and you shall comply with such provisions before commencing the Work as required by §1861 of the California Labor Code.

7-4.1. **Waiver of Subrogation.** The policy or policies shall be endorsed to provide that the insurer will waive all rights of subrogation against the City and its respective elected officials, officers, employees, agents, and representatives for losses paid under the terms of the policy or policies and which arise from Work performed by the Named Insured for the City.

ADD:

7-5.4 **RAILROAD RELATIONS.**

7-5.4.1 **General.** The term "Railroad" shall mean the San Diego Metropolitan Transit System (MTS) and San Diego Trolley Inc. (SDTI) and/or San Diego Arizona & Eastern Railroad (SD&AE).

The Contractor must understand the Contractor's right to enter Railroad's right of way is subject to the absolute right of Railroad to cause the Contractor's work on Railroad's right of way to cease if, in the opinion of Railroad, Contractor's activities create a hazard to Railroad's right of way, employees, and operations.

7-5.4.2 Railroad Right of Entry Requirements. The Contractor shall obtain a Right of Entry Permit from the Railroad prior to entering or constructing on property owned by the Railroad. The Contractor shall abide by the terms of the Right of Entry Permit. The terms of the Right of Entry Permit will govern if there are any conflicts with these contract special provisions. Information on obtaining a Right of Entry Permit can be obtained at <http://www.sdmts.com/business-center-permits/right-entry> or contacting MTS Right of Way Services Tel (619) 557-4501 email: mtsrow@sdmts.com.

7-5.4.3 Payment. When applicable, an Allowance Bid item has been provided for the "MTS Right of Entry Permit."

7-8.1 General. To the "WHITEBOOK", ADD the following:

2. Use a self-loading motorized street sweeper equipped with a functional water spray system for this project.

7-8.6 Water Pollution Control. To the "WHITEBOOK", ADD the following:

6. Based on a preliminary assessment by the City, this Contract is subject to WPCP.

7-8.6.5.1 Payment. To the "WHITEBOOK", DELETE in its entirety.

ADD:

7-8.6.5.1 Chlorination Discharge Requirements.

1. If prior approval is obtained to discharge to the sewer system, you shall discharge the chlorinated water used for testing and acceptance of new water mains to the sewer system in accordance with the Contract Documents after de-chlorination as shown on the "Chlorination Discharge Locations" Plans. You shall submit to the Engineer a "Request for Batch Discharge Authorization to Discharge Potable Pipe Flushing Water to Sewer" form. The request form is found on the City website at the following location:
https://www.sandiego.gov/sites/default/files/batch_discharge_authorization_request_1.pdf
2. When discharging to the sewer system has been approved, you shall use a totalizer flow meter to record the total volume discharged to sewer and shall submit to the Engineer a log of actual discharged water quantities, dates, and locations. Failure to report this information to the Engineer is

a violation of the authorization for discharge to the sanitary sewer. Within five (5) Working Days of the discharge, the Engineer shall report actual total flows to the sanitary sewer to the Public Utilities Department (PUD), Industrial Wastewater Control Program (IWCP).

3. If the discharge to the sewer system is not approved, you shall discharge the chlorinated water used for the testing of new mains to surface waters, storm drain inlets, or to other approved sources and you shall comply with 7-8.6.5, "Hydrostatic Discharge Requirements". All discharge activities related to the project shall comply with the State Water Resources Control Board, ORDER WQ 2014-0194-DWQ, STATEWIDE GENERAL NPDES PERMIT FOR DRINKING WATER SYSTEMS DISCHARGES as referenced by:

http://www.waterboards.ca.gov/water_issues/programs/npdes/docs/drinkingwater/final_statewide_wqo2014_0194_dwq.pdf

All testing shall be conducted by a QSP.

ADD:

7-8.6.5.2 Payment.

1. The payment for complying with the discharge requirements shall be included in the Bid item for the new water main.

7-20 ELECTRONIC COMMUNICATION. To the "WHITEBOOK", ADD the following:

2. Virtual Project Manager shall be used on this Contract.

7-21.1 General. To the "WHITEBOOK", item 3, DELETE in its entirety and SUBSTITUTE with the following:

3. During the construction phase of projects, the minimum waste management reduction goal is 90% of the inert material (a material not subject to decomposition such as concrete, asphalt, brick, rock, block, dirt, metal, glass, and etc.) and 65% of the remaining project waste. You shall provide appropriate documentation, including a Waste Management Form attached as an appendix, and evidence of recycling and reuse of materials to meet the waste reduction goals specified.

7-21.6 Special Project Conditions. To the "WHITEBOOK", item 1, DELETE in its entirety and SUBSTITUTE with the following:

1. When removal of sediments and debris from channels and storm drains are required, you shall make a preliminary estimate of the materials that can be diverted to beneficial use. Receipts from disposal, re-use, and recycling options shall indicate that 65% of materials are diverted.

SECTION 9 - MEASUREMENT AND PAYMENT

ADD:

9-3.7 Compensation Adjustments for Price Index Fluctuations. To the "WHITEBOOK" ADD the following:

5. This Contract **is not** subject to the provisions of The "WHITEBOOK" for Compensation Adjustments for Price Index Fluctuations for paving asphalt.

SECTION 203 – BITUMINOUS MATERIALS

203-3.4.4 Rubber Polymer Modified Slurry (RPMS). To the "WHITEBOOK", ADD the following:

1. RPMS shall be used on this Contract.

SECTION 209 – PRESSURE PIPE

209 PRESSURE PIPE. To the "WHITEBOOK", ADD the following:

2. PVC products, specifically type C900 and C905, as manufactured or distributed by J-M Manufacturing Company or JM Eagle shall not be used on the Contract for pressurized pipe.

209-2.1 General. To the "GREENBOOK", ADD the following:

ACCEPTABLE PIPE MATERIALS FOR THIS PROJECT. WELDED STEEL PIPE (WS) AWWA C200, SPIRAL-SEAM OR STRAIGHT-SEAM AND AWWA M-11 WITH FIELD WELDED JOINTS:

The manufacturer shall furnish a sworn statement that the inspection and all specified tests have been made and the results thereof comply with the requirements of the specified AWWA standards. Drawings and design calculations of the pipe shall be submitted to the Engineer of Work, City Resident Engineer and Inspection Lab for approval. Pipe shall be of the type described below to the minimum size shown and minimum pressure rating as indicated in these specifications or as shown on the drawings. The size shown shall mean the clear inside dimension measured to the lining. Pipe class shown on the plans is the pressure in psi measured by the distance between the pipe centerline and the operating hydraulic gradient.

Welded steel pipe, fittings and specials shall conform to AWWA C200, "Standard for Steel Water Pipe 6-inches and Larger," and shall be cement mortar lined in

conformance with AWWA C205, "Standard for Cement Mortar Protective Lining and Coating for Steel Water Pipe, 4-inches and Larger - Shop Applied" and coated in conformance with AWWA C214, "Tape Coating Systems for the Exterior of Steel Water Pipelines" and AWWA C209, "Cold Applied Tape Coatings for Exterior of Special Sections, Connections and Fittings for Steel Water Pipelines," And as amended in these specifications.

The minimum steel thickness shall be as follows:

For 16-inch diameter pipe, Class 150, the minimum steel thickness shall be 1/4-inch and the minimum specials and fittings steel thickness shall be 1/4-inch.

For 24-inch diameter pipe, Class 150, the minimum steel thickness shall be 1/4-inch and the minimum specials and fittings steel thickness shall be 1/4-inch.

For 30-inch diameter pipe, Class 150, the minimum steel thickness shall be 1/4-inch and the minimum specials and fittings steel thickness shall be 5/16-inch.

For 36-inch diameter pipe, Class 150, the minimum steel thickness shall be 1/4-inch and the minimum specials and fittings steel thickness shall be 5/16-inch.

For 42-inch diameter pipe, Class 150, the minimum steel thickness shall be 1/4-inch and the minimum specials and fittings steel thickness shall be 5/16-inch.

209-2.2.1 Materials. To the "GREENBOOK", Table 209-2.2.1, "Pipe", "Design Standards", DELETE in its entirety and SUBSTITUTE with the following:

Pipe	Design Standards	<p>Pipe and fitting wall thickness shall be selected that which meets the most severe requirements of inside pressure and outside loading considered separately. Design shall limit deflection under selected installation method in accordance with AWWA M-11.</p> <p>Deflection shall be computed by using the modified Iowa formula developed by Spangler in accordance with AWWA M-11. The cement mortar overcoat specified for the dielectric tape coated steel pipe shall not be included in the calculations for pipe deflection. If pipe deflection exceeds that allowed by AWWA M-11, the pipe manufacturer shall increase steel cylinder wall thickness in order that the pipe deflection is less than or equal to the allowable deflection. For cement mortar lined and coated steel pipe manufactured in accordance with AWWA C200 and C205, the mortar coating may be included in the calculations for pipe deflection.</p>
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To Table 209-2.2.1, "Pipe", "Material", DELETE in its entirety and SUBSTITUTE with the following:

Pipe	Material	Steel plates or sheets used in the manufacture of fabricated steel pipe shall comply with Table 1 in AWWA C200, with minimum yield point strength of 33,000 psi. Steel to be fully killed and made to a fine grain practice. Design stress shall not exceed 16,500 psi.
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To Table 209-2.2.1, "Pipe", "Size", DELETE in its entirety and SUBSTITUTE with the following:

Pipe	Size	<p>As shown on the Plans.</p> <p>Fabricated steel pipe shall be a minimum net inside diameter, after application of the interior protective lining, equal to the nominal diameter of the pipe shown on the Plans or in the Special Provisions, with a permissible tolerance of minus 3 mm (1/8 inch).</p> <p>All pipe and fittings for the Pressure Reducing Station on Sheet 38145-88-D shall be as shown on the Plans and shall be not subject to the inside diameter requirements.</p>
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To Table 209-2.2.1, "Pipe", "Lengths", DELETE in its entirety and SUBSTITUTE with the following:

Pipe	Lengths	<p>Unless otherwise specified, fabricated steel pipe shall be manufactured in lengths to fit the pipeline alignment shown on the Plans, subject to a maximum pipe length of 40 feet (12 m).</p> <p>Shorter lengths may be used to facilitate curves or fit horizontal or vertical alignment.</p>
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To Table 209-2.2.1, "Lining and Exterior Coating (Required on exposed steel surfaces and ring joints)", DELETE "(Required on exposed steel surfaces)".

To Table 209-2.2.1, "Lining and Exterior Coating", "Cement-Mortar Interior Lining and Exterior Coating", ADD the following:

Lining and Exterior Coating	Cement-Mortar Interior Lining and Exterior Coating	<p>Conform to AWWA C205 using Type II/V cement.</p> <p>Apply a 3/4 inch minimum thickness cement mortar coating over the tape wrap in accordance with AWWA C205.</p>
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To Table 209-2.2.1, "Lining and Exterior Coating", "Cold-Applied Tape Exterior Coatings", ADD the following:

<p>Lining and Exterior Coating</p>	<p>Cold-Applied Tape Exterior Coatings</p>	<p>Except as described below, the tape coating system for straight line pipe shall be in accordance with AWWA C214, "Tape Coating Systems for the Exterior of Steel Water Pipelines", the system shall consist of four layers consisting of the following:</p> <ol style="list-style-type: none"> 1. Primer layer 2. Inner layer tape - corrosion protective tape (20 mils) with black exterior. 3. Outer layer tape - mechanical protective tape (30 mils) with grey exterior. 4. Outer layer tape - mechanical protective tape (30 mils) with white exterior. <p>The total thickness of the tape coating shall be at least 80 mils. The coated pipe shall be tested and inspected in accordance with AWWA C214. Certified reports of the testing and inspection shall be submitted to the Engineer. The Contractor and/or manufacturer shall submit a list of the tape coating materials to be used which indicates manufacturer, product numbers and manufacturer recommended thickness of material. For each material, technical data sheets shall be submitted which indicate technical and performance information per AWWA C214 and shall provide information that verifies that the material supplied conforms with the appropriate tables in AWWA C214.</p> <p>Coating repair in the shop shall be in accordance with AWWA C214, and coating repair in the field shall be in accordance with AWWA C209.</p> <p>The required cut back for welded pipe ends shall be such that the tape will not be damaged during the welding process. The minimum hold back should be three (3) inches for the tape and six (6) inches for the mortar. The cut back dimensions shall be shown on the pipe shop drawings.</p> <p>All field welded joints shall be tape coated and cement mortar coated in accordance with AWWA C209 and AWWA C205. The total thickness of the field tape wrapping shall be at least 80 mils. The field applied tape wrapping shall have a minimum of 3 inches of overlap over the factory applied tape coating, and even if greater than 3 inches of overlap is obtained, the field applied tape wrapping shall extend from the cement mortar overcoat holdback on one side of the joint up to the cement mortar holdback on the other side of the joint. The inspector shall visually inspect that all joints are taped and cement mortar coated on the outside and hand</p>
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		<p>pointed mortared at the joints on the inside of the pipe.</p> <p>Fittings and specials which cannot be machine coated in accordance with AWWA C214, shall be coated in accordance with AWWA C209. The system shall consist of 3 layers consisting of the following:</p> <ol style="list-style-type: none"> 1. Primer layer 2. Inner layer tape - corrosion protective tape (50 mils) 3. Outer layer tape - mechanical protective tape (30 mils) <p>The total thickness of the tape coating shall be at least 80 mils.</p> <p>Coating repair for fittings and specials shall be in accordance with the procedure described above for straight line pipe.</p> <p>Flanged fittings shall be factory coated in accordance with AWWA C214 and C209. The holdback from the flange shall be zero (0) inches for both the tape and mortar. All flanges shall come with the standard manufacturer's coating and this shall be shown on the shop drawings. The flange and connecting valve or appurtenance shall be wax coated in accordance with AWWA C217 "Petrolatum and Petroleum Wax Tape Coatings for the Exterior of Connections and Fittings for Steel Water Pipelines." The field applied tape shall overlap the shop applied tape by at least three (3) inches. Field-applied mortar coating shall be applied after the flange connection and taping is complete. All tape dimensions, properties, and thickness shall be in accordance with AWWA C217.</p> <p>All mainline outlets for appurtenances shall be factory lined and coated as specified for the main steel pipeline. The minimum hold back from the flange shall be zero (0) inches for both the tape and the mortar. The flange shall be factory primed and tape wrapped in the field.</p> <p>All buried appurtenances, flanges, bolts, etc. shall also be coated in accordance with AWWA C217.</p>
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To Table 209-2.2.1, "Lining and Exterior Coating", ADD the following:

Lining and Exterior Coating	Field Lining at Cement-Mortar Lined Joints	<p>All cement to be used shall be Type II low alkali Portland cement conforming to ASTM C150.</p> <p>The material to be used for cement mortar lining and coating of field welded pipe joints shall be as follows: for cement mortar lining - Jet Set Complete Repair, or approved equal; for cement mortar coating - the product used must comply with AWWA C-205.</p>
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		<p>The cement mortar lining placed after the joints are welded, shall be inspected by the City. An inspection report shall be prepared to document the condition of the interior mortar joints. The report shall be submitted to the Resident Engineer for approval prior to final acceptance of the pipeline.</p> <p>After the completion of the inspection of the cement mortar lining, the City of San Diego shall perform a video inspection of the pipeline. The Contractor shall provide the Project Manager written notification as to when the pipeline will be ready for the video inspection. After the City receives the written notification, they will have one week to perform the video inspection. After one week the Contractor shall proceed with the next phase of the pipeline work.</p>
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To Table 209-2.2.1, "Lining and Exterior Coating", ADD the following:

Lining and Exterior Coating	Field Coating at Tape Coated Steel Pipe Joints	All field welded joints shall be tape coated and cement mortar coated in accordance with AWWA C209 and AWWA C205.
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209-2.2.2 Submittals. To the "GREENBOOK", Sentence (1), DELETE in its entirety and SUBSTITUTE with the following:

Prior to fabricating pipe, the Contractor shall submit, in accordance with 2-5.3, Shop Drawings, and 209-2.2.2.1, Shop Drawings for the fabrication of pipe, pipe specials, and joint details.

ADD:

209-2.2.2.1 Shop Drawings.

Manufacturer shall submit copies to the Engineer of Work for approval prior to manufacture of any pipe and fittings for the following:

1. Detailed drawings.
2. Tabulated layout schedule.
3. Design calculations for pipe wall thickness. (Use E' value of 750 in accordance with City of San Diego, Standard Drawing SDS-100)
4. Field joint details.
5. Technical data and information on the tape coating to be used.

6. Required tests for tape coating to be used.

Shop drawings shall be in accordance with the requirements of AWWA C200, C205 and C214.

Data to be furnished by the Contractor shall be in accordance with all applicable provisions of Section 2-5.3, "Shop Drawings," of the standard specifications where not inconsistent with the plans and the express provisions of these specifications.

The drawings accompanying these specifications indicate only the general features of the work, and all proportioning and detailing for the pipeline, specials, and connections shall be done by the Contractor. The Contractor shall prepare, and submit for review and approval before starting fabrication, a tabulated layout schedule and detailed fabrication drawings.

The drawings shall include the configuration, essential dimensions, and materials to be used in fabricating the pipe, pipe specials, and fittings, and shall include details of standard pipe joints, and of typical field welded joints showing the lining and coating holdback. The minimum radius of any fabricated bend shall be at least 2.5 times the nominal pipe diameter.

The layout and marking schedule shall include the specific number of each pipe and fitting and the location of each pipe and the direction of each fitting in the completed line. In addition, the layout schedule shall include: the pipe station and top of pipe elevation at all changes in grade or horizontal alignment; the station and top of pipe elevation to which the bell end of each pipe will be laid; and all elements of curves and bends, both in horizontal and vertical alignment. Dimensional drawings of all valves, fittings and appurtenances shall be provided with the layout schedule.

Joint and pipe/fitting wall construction details which indicate the type and thickness of cylinder; the position, type, size, and area of wire or reinforcement if required; manufacturing tolerances; and all other pertinent information required for the manufacture of the product.

Fittings and specials details such as elbows, wyes, tees, outlets, connections, test bulkheads, and nozzles or other specials where shown on the drawings which indicate amount and position of all reinforcement. All fittings and specials shall be properly reinforced to withstand the internal pressure, both circumferential and longitudinal, and the external loading conditions as indicated in the contract documents. Material lists and steel reinforcement schedules which include and describe all materials to be utilized.

Joints below existing utilities shall be avoided.

The Contractor shall determine where to use cut-to-fit pieces and/or field weld on flanges. These shall be shown on the pipe shop drawings.

The pipe alignment and grade, the location of valves, fittings and appurtenances, as shown on the Contractor's layout schedule shall conform essentially with

those shown on the contract plans. The Engineer, at his discretion, may approve minor changes made for economy or convenience in manufacture or construction. Unless otherwise ordered or permitted by the Engineer, construction shall conform to the approved layout schedule and fabrication drawings.

When approved by the Engineer, changes in alignment or grade may be accomplished by deflections at the joints between lengths of standard pipe, or by use of beveled pipe, or by a combination of the two.

Before preparing the schedule and fabrication drawings, the Contractor shall expose the existing main at points of connection and determine their precise locations and alignment relative to the alignment of the new pipe as shown on the drawings. The Contractor shall furnish the Agency with tracings or transparencies of the approved schedule and drawings, from which the Agency can obtain the required prints.

SHOP DRAWING D-SHEETS

Once the pipe shop drawings are approved and released for production, the pipe fabricator shall assemble all the approved and corrected shop drawings onto City of San Diego D-sheets and shall have a State of California registered engineer, who was responsible to oversee the preparation of the shop drawings, stamp and sign each D-sheet. The final D-sheets to be stamped and signed by the pipe fabricator's Registered Engineer shall be photo mylars or mylar plots from digital files. The preparation of the shop drawing mylars shall be coordinated with the Engineer to assure proper sheet numbering and title block information. The Engineer shall be responsible for processing the shop drawing sheets through the City of San Diego as a Construction Change. The pipe fabricator shall be responsible for preparing and modifying the sheets to conform to City of San Diego requirements.

209-2.2.4 Joints. To the "GREENBOOK", ADD the following:

All nonflanged pipe joints shall be field welded. All pipe shall have lap welded slip joints and shall be field welded on the inside and outside for pipe sizes greater than 24 inches diameter. For pipe size less than or equal to 24 inches diameters, welding shall be on the outside of the joint. Fillet welds shall be used and shall be of a size equal to the thickness of the bell or cylinder, whichever is greater, and shall be built up in passes of not more than one-eighth inch (1/8") per pass. Field welding shall conform to AWWA C206, "Standard for Field Welding of Steel Water Pipe."

For lap joint pipe prepared for field welding, the inside circumference of the bell end shall not exceed the outside circumference of the spigot end by more than 0.1563 inch (5/32 inch).

In order that the proper shop modifications may be made to the joints to be field welded, the shop fabrications shall indicate details of the typical field welded joint and the required coating and lining holdback.

Casing pipe sections shall be butt welded.

All closure and makeup joints shall be made with butt straps for field welding in accordance with the latest version of the applicable City of San Diego Standard Drawing. Butt straps shall be field welded on the outside of the pipe joint using a fillet weld. The fillet weld shall be of a size equal to the thickness of the cylinder or butt strap, whichever is greater, and shall be built up in passes of not more than one-eighth inch (1/8") per pass.

Handholes shall be provided in accordance with the plans and the latest version of the applicable City of San Diego Standard Drawing.

209-2.2.5 Special Sections. To the "GREENBOOK", ADD the following:

Reinforcement and/or crotch plate design for wyes, tees, outlets and nozzles shall be designed in accordance with AWWA Manual M-11, "Steel Water Pipe - a Guide for Design and Installation." The Dished Heads required for this project shall be in accordance with the detail on the plans and the approved shop drawings, the lining and coating holdbacks shall be shown on the pipe shop drawings and approved by the Engineer of Work. Reinforcement shall be designed for the working pressure. Pipe materials used in fittings shall be of the same material as the pipe with minimum steel plate thickness as indicated in Section 207-10.2.1 of these specifications.

The minimum radius of elbows shall be 2.5 times the pipe diameter and the maximum miter angle on each section of the elbow shall not exceed 11 1/4 degrees. Fittings shall be equal in pressure design strength and shall have the same lining and coating as the abutting pipe. Specials and fittings, unless otherwise shown on the plans, shall be made of segmentally welded sections from hydrostatically tested pipe, with ends to mate with the type of joint or coupling specified for the pipe.

Specials and fittings that cannot be mechanically lined and coated shall be factory lined and coated by hand-application using the same materials as are used for the pipe and in accordance with the applicable AWWA standards. Coating and lining applied in this manner shall provide protection equal to that specified for the pipe. Fittings may be fabricated from pipe that has been mechanically lined and/or coated. Areas of lining and coating that have been damaged by such fabrication shall be repaired by hand- applications in accordance with applicable AWWA standards.

209-2.2.6 Welding. To the "GREENBOOK", ADD the following:

All welding procedures used to fabricate pipe shall be prequalified under the provisions of ANSI/AWS D1.1 or ASME SEC. IX. Welding procedures shall be required for, but not necessarily limited to, longitudinal and girth or spiral welds for pipe cylinders, spigot and bell ring attachments, reinforcing plates and ring flange welds, and plates for lug connections.

All welding shall be done by skilled welders, welding operators, and tackers who have had adequate experience in the methods and materials to be used.

Welders shall be qualified under the provisions of ANSI/AWS D1.1 not more than 6 months prior to commencing work on the pipeline. Machines and electrodes similar to those used in the work shall be used in qualification tests. The manufacturer shall furnish all material and bear the expense of qualifying welders. The Contractor shall furnish the Engineer with a certified laboratory report stating the results of required welding tests performed during pipe fabrication.

Field welding shall be performed by certified welders in accordance with AWWA C206.

ADD:

209-2.2.6.1 Special Inspection and Testing of Field Welds. All costs for special welding inspection and testing of field welds shall be the responsibility of the Contractor in accordance with Section 4-1.3.4 of the "WHITEBOOK".

A. Qualification of Welders, Equipment and Procedures:

Prior to the start of welding, the special inspector shall check welder qualifications and verify that procedure specifications to be used have been approved.

B. Inspection of Field Welds:

The special inspector shall visually examine 100% of all welds performed in the field.

Acceptance Standards for Visual Examination. The following indications are unacceptable:

1. Cracks - external surface;
2. Undercut on surface which is greater than 1/32-inch (1.0 mm) deep;
3. Lack of fusion on surface;
4. Incomplete penetration (applies only when opposite surface is readily accessible).

Any weld not conforming to the above acceptance standards shall be ground smooth and blended in to the satisfaction of the special inspector.

C. Nondestructive Testing of Field Welds:

Nondestructive testing of field welds shall be performed by the special inspector, as directed by the Resident Engineer, using testing and acceptance criteria as set forth in the ASME Boiler and Pressure Vessel Code, Section V, and as specified herein.

Nondestructive test methods and acceptance criteria shall be submitted to the Resident Engineer for review and approval thirty (30) working days

prior to beginning any field welding operations and in accordance with Subsection 2-5.3 of Standard Specifications for Public Works Construction. Nondestructive testing shall be performed as follows:

WELDED SLIP JOINTS:

Nondestructive testing shall be performed on a random sampling of all slip joint field welds provided that not less than twenty percent (20%) of such field welds are tested. The special inspector shall ensure that the work of each welder is tested in accordance with this section.

BUTT STRAPS AND NON-SLIP JOINTS:

Nondestructive testing shall be performed on one-hundred percent (100%) of all butt strap welds and other non-slip joint welds performed in the field.

Portions of welds not conforming to the applicable acceptance standards shall be completely removed in a manner, which will permit proper and complete repair by welding. All repair welds shall be re-tested by the special inspector.

D. Air/Soap Testing of Field Welds:

One ¼-inch tapped hole per joint is required for welded steel pipe requiring double welding of joints. Test procedure shall be per AWWA C206, Section 5.2.2.2.

ADD:

209-2.2.7

Affidavit of Compliance. Affidavit of compliance is required from the manufacturer that the pipe, specials, and fittings furnished under this contract comply with these special provisions, applicable standards and as specified in AWWA C200, C205, C214 and C217 and the following supplemental requirements:

1. Physical and chemical properties of all steel
2. Hydrostatic test reports
3. Results of production weld tests
4. Coating and lining tests
5. Technical data and information on the tape coating to be used.

All expenses incurred in making samples for certification of tests shall be borne by the Contractor and/or manufacturer.

ADD:

209-2.2.8 Field Painting. Metal components which are furnished with shop-applied protective coating shall be carefully installed to avoid damage to the coatings. Any areas of such coatings which show damage after installation is complete shall be cleaned and recoated. The touch-up coating materials shall be identical to the shop-applied coating, or a suitable substitute therefore, recommended by the component manufacturer and approved by the Engineer.

Steel surfaces, other than stainless steel, which are not galvanized or shop-coated, shall be epoxy coated in accordance with AWWA C210. The minimum dry film thickness shall be 16 mils, and the epoxy shall meet NSF Standards for contact with potable water.

ADD:

209-2.2.9 Installation, Storage and Handling. Bracing shall consist of at least three (3) sets of stulls for each standard length pipe. Stull struts and stull blocks shall be of such size, shape and material that the pipe is held round and its interior surface protected from damage under all loads encountered in handling, installing and backfilling. Bracing shall remain in place until after the pipe is laid in the trench, bedding and backfill compacted and pipe is firmly held in place.

Pipe shall be stored on sand ribbons during both curing operations and during yard storage.

When storage of the pipe at the manufacturer's yard shall exceed two calendar weeks after the completion of the pipe manufacturing and standard curing process, the manufacturer shall periodically wet the interior and exterior of the pipe to maintain sufficient moisture content in the cement mortar to avoid the development of mortar cracks greater than one-sixteenth of one inch. The end caps on the pipe shall be replaced after each addition of water in order to maintain the required seal for the interior mortar.

Until the pipe installation and backfilling are completed, all concrete surfaces of the pipe shall be sprinkled periodically to prevent excessive drying and thermal stressing.

At all times after application of the mortar coating or removal of the exterior forms, standard pipe lengths shall be handled only with belt slings of sufficient width to avoid damage to the exterior surface. Specials and fittings shall be handled by approved means, which avoid inflicting any damage. Chain slings shall not be used, and wire rope slings may be used only if encased in heavy rubber hose.

During transportation, pipe shall be mounted on padded bolsters curved to fit the pipe. Heavy padding shall be used under the tie chains. The pipe ends shall be closed to prevent air circulation and drying of the pipe interior in transit and during storage until the pipe is laid.

The pipe shall be handled by use of 12" wide nylon slings, padded cradles, or other devices, acceptable to the Engineer, designed and constructed to prevent damage to the pipe coating/exterior. The use of chains, hooks, or other equipment which might injure the pipe coating/exterior will not be permitted. All other pipe handling equipment and methods shall be acceptable to the Engineer.

The Contractor shall be fully liable for the cost of replacement or repair of pipe, which is damaged.

Stockpiled pipe shall be supported on sand or earth berms. The pipe shall not be rolled and shall be secured to prevent accidental rolling.

The Contractor and/or manufacturer shall consult the Owner if any anticipated outdoor storage will be required prior to installation so that necessary precautions can be taken.

ADD:

209-2.2.10 Side Outlets. Outlets shall be installed as shown on the plans for connections to the new pipe. The outlets shall remain uncovered until all joint assembly, field welding, lining, and coating is accomplished and hydrostatic testing and inspection is completed. Outlets shall be backfilled with sand densified as provided in Subsection 306-1.3. The outlets shall then be covered and the finish pavement laid.

All pipe with side outlets shall be considered as a special section and requires the main steel pipeline to be a minimum wall thickness as defined in Section 207-10.2.1.

All side outlets for appurtenances shall be factory lined and coated as specified for the main steel pipeline. The minimum hold back from the flange shall be zero (0) inches for the tape and the mortar. The flange shall be factory primed and the tape wrapped in the field.

ADD:

209-4.8 Flexible Couplings. Flexible couplings shall be carbon steel and all parts shall be fusion epoxy coated with carbon steel hardware. The manufacturer of the flexible couplings shall be from the City of San Diego's approved materials list. All flexible couplings installed in buried applications shall be wax tape wrapped in accordance with AWWA C217.PTFE Bearing and assembly shall be paid for per each Bearing System per location.

SECTION 217 – BEDDING AND BACKFILL MATERIALS

217-2.2 **Stones, Boulders, and Broken Concrete.** To the “GREENBOOK”, Table 217-2.2, DELETE in its entirety and SUBSTITUTE with the following:

TABLE 217-2.2

Zone	Zone Limits	Maximum Size (greatest dimension)	Backfill Requirements in Addition to 217-2.1
Street or Surface Zone	From ground surface to 12” (300 mm) below pavement subgrade or ground surface	2.5” (63 mm)	As required by the Plans or Special Provisions.
Street or Surface Zone Backfill of Tunnels beneath Concrete Flatwork		Sand	Sand equivalent of not less than 30.
Trench Zone	From 12” (300 mm) below pavement subgrade or ground surface to 12” (300 mm) above top of pipe or box	6” (150 mm)	
Deep Trench Zone (Trenches 3’ (0.9 m) wide or wider)	From 60” (1.5 m) below finished surface to 12” (300 mm) above top of pipe or box	Rocks up to 12” (300 mm) excavated from trench may be placed as backfill	
Pipe Zone	From 12” (300 mm) above top of pipe or box to 6” (150 mm) below bottom of pipe or box exterior	2.5” (63 mm)	Sand equivalent of not less than 30 or a coefficient of permeability greater than 1-½ inches/hour (35 mm per hour).
Overexcavation	Backfill more than 6” (150 mm) below bottom of pipe or box exterior	6” (150 mm)	Sand equivalent of not less than 30 or a coefficient of permeability greater than 1-½ inches/hour (35 mm per hour). Trench backfill slurry (100-E-100) per 201-1 may also be used.

SECTION 300 – EARTHWORK

300-1.1 **General.** To the “GREENBOOK”, ADD the following:

Prior to submittal of a Bid for this Work, the Contractor shall inspect the project site to verify the magnitude and cost of all clearing and grubbing required to accomplish the Work on sheets **38032-1-D** through **38032-7-D**.

Clearing and grubbing shall also include saw cutting, demolition, removal and disposal of all existing improvements including, but not limited to, soil, pavement

(Asphalt Concrete, Base, Unclassified Materials) up to 24 inches thick, curb and gutter, abandoned utilities and utility structures, existing storm drain inlets and wings, grates, portions of existing storm drain pipe to fit proposed cleanouts and all other existing improvements that are shown on the plans for removal, or any other removals required to achieve subgrade as directed by the Resident Engineer to be removed, or otherwise required to perform the work.

300-1.4 Payment. To the "WHITEBOOK", DELETE paragraph five and ADD the following:

8. The lump sum price paid for Clearing and Grubbing shall include full compensation for the sawcutting, removal, protection, and disposal of any and all PCC Pavement, AC Pavement, Base Material, soil, driveway, sidewalk, curb and gutter, bollards, storm drain curb inlets and wings, grates, storm drain pipe, landscaping, irrigation, utility structures (pull boxes, conduit, wiring, etc), fire hydrants and any other materials and objects that are in conflict with the installation of the Work as shown on sheets **38032-1-D** through **38032-7-D**.

SECTION 302 – ROADWAY SURFACING

ADD:

302-4.12.2.1.1 Slurry Treatment.

1. When slurry treatment is required by the Contract Documents, notify the Engineer at least 10 Working Days prior to the first application of slurry. The Engineer, upon assessment of street condition and classification, will verify the slurry type to be applied.
2. Application of sequential layers of slurry shall not commence until approved by the Engineer and until the following have been completed:
 - a) Mix design and wet track abrasion testing for the first-step slurry application has been approved by the Engineer. Unless otherwise directed by the Engineer, this testing may require 4 Working Days from field sampling to reporting of test results to the Engineer.
 - b) Corrective actions have been executed in accordance with 302-4.11.1.2, "Reduction in Payment Based on WTAT" such as reductions in payment, non-payment, or removal of material not meeting specifications, as directed by the Engineer.

302-4.12.4 Measurement and Payment. To the “WHITEBOOK”, item 2, DELETE in its entirety and SUBSTITUTE with the following:

2. The payment for RPMS shall be the total square footage used on the project calculated using the method described and shall be paid under the following Bid items:

BID DESCRIPTION	UNIT
Rubber Polymer Modified Slurry (RPMS) Type I	SF
Rubber Polymer Modified Slurry (RPMS) Type II	SF
Rubber Polymer Modified Slurry (RPMS) Type III	SF
Rubber Polymer Modified Slurry (RPMS) Type I (Bike Lane)	SF

The Bid items for RPMS shall include full compensation for the specified surface preparation not included in other Bid items and shall include the Work necessary to construct the RPMS as specified on the Plans. Sweeping, removals, and furnishing the aggregate required for the mix design shall also be included in this Bid item.

302-5.9 Measurement and Payment. To the “WHITEBOOK”, item 2, DELETE in its entirety.

302-5.9 Measurement and Payment. To the “WHITEBOOK”, item 2, DELETE in its entirety and SUBSTITUTE with the following:

2. Payment for asphalt concrete, adjusting manhole frame and covers and gate valves to grade shall be included in the Bid item for “Asphalt Concrete Overlay”.

302-7.4 Payment. To the “WHITEBOOK”, item 1, last sentence, DELETE in its entirety and SUBSTITUTE with the following:

Payment shall not be made for additional fabric for overlapped areas.

SECTION 303 – CONCRETE AND MASONRY CONSTRUCTION

303-5.10.2 Payment. To the “WHITEBOOK”, items 1 and 3, DELETE in their entirety and SUBSTITUE with the following:

1. The payment for each curb ramp shall include transition areas, landings, DWTs, demolition and disposal, forming, relocating or raising items in conflict to grade, protecting and preserving existing survey monuments and improvements, restoring pavement, design and implementation of traffic control, and handrails as shown on the plans.
3. The payment for each modified curb ramp shall include transition areas, landings, DWTs, demolition and disposal, forming, relocating or raising items in conflict to grade, protecting and preserving existing survey monuments and improvements, restoring pavement, design and implementation of traffic control, and handrails as shown on the plans.

SECTION 304 – METAL FABRICATION AND CONSTRUCTION

304-5 PAYMENT. To the “WHITEBOOK”, REVISE section “304-5” to “304-6”.

SECTION 306 – OPEN TRENCH CONDUIT CONSTRUCTION

306-1 GENERAL. To the “GREENBOOK”, ADD the following:

Build the Project in accordance with the water high-lining phasing shown on the Plans, per Section 6-1.2.1 and in phases as follows:

As shown on Construction Plan **Sheets 38145-52-D to 38145-54-D**

306-3.3.3 Payment. To the “WHITEBOOK”, ADD the following:

9. The payment for the removal of the existing 536/390 Pressure Regulating Station at the intersection of 30th and Thorn Street shall include the removal of the existing facility and appurtenances in their entirety including the SCADA and telemetry equipment upon completion of the proposed 536/390 Pressure Regulating Station at the intersection of 28th and Thorn Street and shall be included in the Lump Sum Bid item for “Removal of Existing 536/390 Pressure Regulating Station”.

306-7.8.2.1 General. To the “WHITEBOOK”, item 2, ADD the following:

- a) Specified test pressure for Class 235 pipe shall be 150 psi.
- b) Specified test pressure for Class 305 pipe shall be 200 psi.

306-8.9.2.1 General. To the "GREENBOOK", ADD the following:

Pressure testing of pipe and fittings at the lowest elevation shall be performed at 150% of the specified test pressure and no less than 100% of the specified test pressure at the highest elevation.

Specified test pressure for Class 235 pipe will be 150 psi.

Specified test pressure for Class 305 pipe will be 200 psi.

306-15.8 Pipeline Appurtenances. To the "WHITEBOOK", item 2, ADD the following:

2. The bid item for water services shall include cost associated with rotating water meters, where required, and the larger pipe and appurtenances that extend from main line that water services tie into.

306-15.8 Pipeline Appurtenances. To the "WHITEBOOK", ADD the following:

9. Payment for Access Manholes shall be included in the Bid item for each "Access Manhole" and includes all items indicated on Detail 1 per Sheet 108 of the Plans.

306-15.13 Double Ball Flex Joints. To the "WHITEBOOK", ADD the following:

The payment for double ball flex joints at bridges shall be included in the lump sum Bid item for Two (2) Double Ball Flex Joints at Bridges.

ADD:

306-24 GEOTECHNICAL INSTRUMENTATION FOR GROUND MOVEMENT.

306-24.1 General. Geotechnical Instrumentation for Ground Movement is used to measure and or detect ground movement and then change the process so as to minimize and or eliminate ground movement as the project advances. If the ground movement exceeds certain limits the project may be required to stop so as to not damage a sensitive feature or to place the general public at risk to injury.

1. Ground conditions are to be as specified in 306-25 Horizontal Auger Boring (HAB).
2. All submittals for work within the railroad right-of-way (ROW) are subject to railroad review, comment, and Right of Entry Permit requirements.
3. All work completed within the railroad ROW is subject to railroad review, inspection, acceptance, and Right of Entry Permit requirements.

306-24.2**Contractor's Qualifications and Submittals.**

1. Geotechnical submittals shall be coordinated with all relevant submittals, assembled and submitted as a single, comprehensive submittal.
2. The Contractor shall submit an experienced and qualified California licensed geotechnical engineer (GE) or California licensed engineer (PE) to install, take readings, and perform analysis. Provide an experience list demonstrating similar projects with similar requirements.
3. The Contractor shall submit an experienced and licensed California Land surveyor to survey and take required geotechnical survey readings. Provide an experience list demonstrating similar projects with similar requirements.
4. Experience record - For each project listed for experience include: project name, project location, month and year work completed, project owner, project owner's contact, project owner's contact information, instruments installed and read, length, soil type, tunneling method, and if work was completed for a general contractor (GC) GC's name, GC's contact, and GC's contact information for each project.
5. The Contractor shall submit the following items for the Engineer's acceptance prior to ordering materials and the start of the Work:
 - A. Railroad Right of Entry Permit. Information on obtaining a Right of Entry Permit can be obtained at <http://www.sdmts.com/business-center-permits/right-entry> or contacting MTS Right of Way Services Tel (619) 557-4501 or email: mtsrow@sdmts.com.
 - B. Planned location, planned depth, unique identifier, permit reference, installation information, and removal including dates.
 - C. Baseline reading form with space for cumulative readings. Show anticipated schedule and actual schedule.
 - D. Daily observation record.
 - E. Draft or sample report demonstrating analysis and interpretation of readings.
 - F. Preprinted instrument product information demonstrating instrument meets requirements. Also include installation, reading, handling, and disposal requirements.
 - G. Contingency plans for the following potential conditions and action levels as defined in Section 306.8 of these specifications:

- a) Monitoring or observation demonstrates ground movement requiring notice.
 - b) Monitoring or observation demonstrates ground movement requiring action.
 - c) Monitoring or observation demonstrates ground movement requiring stoppage.
6. Provide the following construction submittals for each instrument type:
- A. Baseline reading derived from three cumulative readings with each reading having a separate equipment set-up. Provide data no later than the next working day with interpretations within 2 working days.
 - B. Daily observation record no later than the next working day.
 - C. Written notices are to be provided on the same day as the incident.
6. Provide the following post-construction submittals for each instrument type:
- A. Complete record of readings and observations and summary of movement.

306-24.3 Ground Observation. The Contractor shall have the same person walk the tunnel alignment at least three times per shift and note any visible signs of ground movement. Observations may include new cracks, opening cracks, fluids on the surface, rat holes, and any other notable or suspect feature. Record and photograph observations including a scale and markings demonstrating repeatability of measurement and location. Provide immediate written notice and comment on potential for damage.

306-24.4 Surface Monitoring Points (SMP). The Contractor shall monitor the ground surface elevation using survey methods and note any visible signs of ground movement. Use the following within 20 feet of each shaft and regularly spaced, not to exceed 50 feet separation, over the tunnel centerline and as accepted by the Engineer:

- 1. Type A - Is used to detect ground movement originating deeper than 8 feet below existing grade. Instrument is designed to penetrate through surface features that would bridge settlement.
- 2. Type B - Is used to detect ground movement originating deeper than 4 feet and shallower than Type A below existing grade. Instrument is designed to penetrate through surface features that would bridge settlement.

3. Type C - Is used to detect near surface ground movement. Instrument is not designed to penetrate through surface features that would bridge settlement. Type C may also be used to mark ground observation locations and rail elevation locations.
4. SMP array - Three Type A and Type B instruments used to measure ground movement and the settlement trough. An array is used when the tunnel has more than 20 feet of cover. One Type A instrument is located over the tunnel centerline and depending on the soil type and depth of tunnel cover, one Type A or B instrument is offset perpendicular to the alignment or parallel to the flow of traffic on both sides of the tunnel. The bottom of the offset instrument is to be located within the settlement cone and therefore the amount of offset is based upon soil type and depth of tunnel cover and is location specific.

306-24.5 Rail Elevations, Buildings, and Retaining Walls.

1. The Contractor shall monitor rail elevations and building and retaining wall elevations and vertical nature of each using survey methods. Monitor all rails, buildings, and retaining walls overlying the tunnel and within the ROW. Contractor is to create a baseline derived from three sets of data with each data point having a separate equipment set-up before commencing excavation. The monitoring shall be at the start of each work shift. Observations may include new cracks, opening cracks, fluids on the surface, rat holes, and any other notable or suspect feature. Record and photograph observations.
2. The contractor shall offer building inspection and documentation services for properties within 50 feet of the shafts and tunnel. The inspection is to be completed after receiving written permission in a form acceptable to the City from the property owner and tenant(s). Inspection is to occur before excavation commences and after 30 days following backfilling of the excavations. Purpose is to document the state of the existing structure with measurements and photographs of cracks and other items of potential claim.

306-24.6 Quality Control.

1. All instruments are to be installed and baselined before any other excavation commences. The only exception is potholing to locate utilities.
2. Grout - any grout used to install geotechnical instrumentation shall be of approximately the same strength as the ground encountered during installation of each instrument so as to not improve the ground. Grout strength can be estimated based upon the anticipated ground conditions as defined in 306-25.

3. Baseline measurements are those measurements taken upon initial installation of the point and with at least three readings taken and demonstrating to a reasonable certainty the commonality and reproducibility of the data.
 - a) Three readings shall be taken using completely separate equipment set-ups.
 - b) Each set-up shall be on separate work days.
 - c) If the readings are inconsistent then a second set of two readings as described above are to be completed by a second surveyor before review by Engineer.
4. Coordinate with other related specifications including:
 - a) 306-25 Horizontal Auger Boring
 - b) 306-26 Shafts
 - c) 306-27 Jacked Steel Casing
 - d) 306-28 Contact Grouting
 - e) 306-29 Insertion of Carrier Pipe in Casing

306-24.7

Action Levels and Measurement Frequency. All ground movement is based upon the net movement from the original baseline measurement. Measurements are those taken where the tunnel has been excavated and those within 50 feet of the face, point at which excavation takes place.

1. Ground movement within acceptable limits – Take measurements at the start of every other work day commencing on the first day of excavation.
2. Ground movement requiring written notice - Take measurements at the start of every work day commencing on the first day of written notice. Contractor shall submit revised work plan stating how the work plan is changed to prevent attaining the next action level. Submit documentation implementing revised work plan with intended measureable results.
3. Ground movement requiring action - Take measurements at the start of every work day and every 4 work hours commencing on the first day of written notice. Contractor shall submit revised work plan stating how the work plan is changed to prevent attaining the next action level. Contractor is required to address changing HAB supervisor/foreman and HAB operator. Submit documentation implementing revised work plan with intended measureable results.

4. Ground movement requiring stoppage – Stop excavation and provide written notice. Work will not resume until acceptable corrective action is completed. Take measurements at the start of every work day and every 4 work hours commencing on the first day of written notice. Frequency of measurements shall not be decreased until after 10 consecutive days of readings demonstrating ground movement has essentially stopped. All 10 days of readings being ± 0.01 feet of the same measurement or statistically proven to be accurate and without further movement.
5. Drive completed – Take measurements at the start of every work week commencing the week following completion of excavation. After four weeks of readings being ± 0.01 feet of the same measurement or statistically proven to be accurate and without movement, the taking of measurements can stop.

306-24.8 Action Levels. Plus (+) is heave and minus (-) is settlement.

1. Ground movement requiring written notice – attainment of $\pm 50\%$ of maximum allowable
2. Ground movement requiring action – attainment of $\pm 75\%$ of maximum allowable
3. Ground movement requiring stoppage – attainment of $\pm 90\%$ of maximum allowable.

306-24.9 Maximum Allowable by Owner.

1. Railroad, Buildings, and Retaining Walls – 0.25 inches elevation and 0.10 degrees change in vertical nature.
2. City of San Diego – 0.5 inches.

306-24.10 Restoration. Contractor shall remove instruments and restore damaged surface, structures, and improvements to previous condition unless otherwise specified. Contractor shall remove debris, materials, equipment, and legally dispose of all waste.

306-24.11 Measurement. Instruments, installation, removal, and disposal shall be included within the appropriate Lump Sum Trenchless Construction – (by location) Bid Item.

306-24.12 Payment. Instruments, readings, reporting and all other related costs including all work appurtenant to constructing and installing a complete and operational pipeline within the limits shown on the Plans and as specified herein, is incidental to and included in the Lump Sum Trenchless Construction – (by location) Bid Item.

ADD:

306-25 HORIZONTAL AUGER BORING.

306-25.1 General. Horizontal auger boring (HAB), also known as auger boring and bore and jack, and is referred to as horizontal auger boring (HAB) herein. HAB is typically a two-pass tunnel construction method where a horizontal auger boring machine is set in a shaft to the design line and grade to excavate a tunnel of a predetermined diameter and length along a predetermined path. A steel casing which provides the initial ground support is set on the auger boring rails and advanced by the auger boring machine while lubrication is injected between the casing and the ground. The auger, internal to the steel casing, is simultaneously rotated and jacked forward to excavate the tunnel and remove the spoils. Upon completion of the tunnel a carrier pipe is inserted into the tunnel, second pass, and set to the design line and grade. Before starting excavation, the Contractor shall, in accordance with 2-5.3, submit Working Drawings of jacking shaft bracing, casing, carrier pipe, and auger head and submit a detail operational plan based upon the anticipated ground conditions as defined below. The method is further described in ASCE Manual of Practice 106. When specified or as approved by the Engineer, HAB shall be subject to the following specification.

1. The anticipated ground conditions for the horizontal auger boring, shafts, and related work are as disclosed in the project geotechnical report, "Report of Geotechnical Investigation, 30th Street Pipeline Replacement, City of San Diego" prepared by Allied Geotechnical Engineers, Inc. and dated November 9, 2015 and as modified herein. The Contractor is to assume the ground water levels change over time and following rain events and to allow for these changes the groundwater is to be presumed to be 2 feet higher in elevation than shown on the bore logs. The contractor is to also review and select appropriate materials as noted in RF Yeager's letter dated November 9, 2015 addressed to Mr. Kevin Gibson for the subject "City of San Diego - 30th Street Steel Pipeline, Soil Corrosivity Assessment."
2. All submittals for work within the railroad right-of-way (ROW) are subject to railroad review, comment, and Right of Entry Permit requirements.
3. All work completed within the railroad ROW is subject to railroad review, inspection, acceptance, and Right of Entry Permit requirements.

306-25.2 Contractor's Qualifications and Submittals.

1. HAB submittals shall be coordinated with all relevant submittals, assembled and submitted as a single, comprehensive submittal.
2. The Contractor performing the Work shall be a licensed contractor in the State of California and holder of current annual underground certifications/permits/licenses and experienced in HAB operations.

3. The Contractor shall submit the following items for the Engineer's acceptance prior to ordering materials and the start of the Work:
 - A. List of past HAB projects successfully completed by each: (1) the contractor performing the work, (2) the person supervising the work, and (3) the HAB operator. List at least 10 drives of at least 150 feet each in each of the last 5 years.
 - B. Preprinted HAB machine specifications or a letter from the HAB machine manufacturer demonstrating that the selected machine is capable of progressing through the anticipated ground conditions and is suitable for the size and scope of the Work.
 - C. List of at least 10 tunnel projects over the last 5 years including references and contact information where the contractor's CA land surveyor has performed similar line and grade transfers for tunneling, tunnel line and grade surveys, closed loop tunnel surveys confirming tunnel installation accuracy, and prepared AutoCAD as-built drawings demonstrating the carrier pipe can be installed in accordance with these specifications.
 - D. Experience record - For each project listed for experience include: project name, project location, month and year work completed, project owner, project owner's contact, project owner's contact information, casing size, length, soil type, tunneling method, and if work was completed for a general contractor (GC) GC's name, GC's contact, and GC's contact information for each project.
 - E. Construction procedure for casing pipe installation including:
 - a) Launching and receiving shafts proposed dimensions, locations, method of excavation, shoring, bracing and ventilation. Shafts shall be of the smallest size practical for construction.
 - b) Continual application of lubrication.
 - c) Method to prevent loss of lubrication at the point of entrance and or through shaft wall.
 - d) Equipment technical data and operating procedures.
 - F. Detailed calculations and work plans for each crossing signed by the Contractor's Engineer to acknowledge their review. Including:
 - a) Jacking force calculations for each drive as specified in Section 306-26. Calculations are to demonstrate the anticipated jacking forces are accommodated in the

design as required by the jacking frame, thrust block, shoring system, and ground behind the shoring system.

- b) Scale drawing(s) showing configuration of auger head, tooling, leading edge of casing, and operation position of auger head in relation to the leading edge of casing based upon anticipated ground conditions. Provide reasoning for any cutter projecting beyond casing leading edge and beyond inside edge of casing inside diameter. Restraint showing how the auger will not be allowed to be advanced in front of the casing.
 - c) Schedule demonstrating that the tunneling work across the railroad ROW will be completed in the same work week as it commences. No HAB will commence in a work week of less than 5 work days and no later than Tuesday. Contractor will work every day until tunnel is across the railroad ROW.
 - d) Address and comply with all railroad requirements.
- G. Contingency plans for acceptance for the following potential conditions:
- a) Loss of ground or heaving.
 - b) Encountering an unforeseen obstruction or inability to advance.
 - c) Method of adjusting auger boring head if ground encountered is different than anticipated ground conditions.
 - d) Jacking forces projected at completion, based upon current forces, exceed casing maximum allowable or HAB design capabilities.
 - e) Loss of, and return to, design line and grade.
- H. Layout and profile of the auger boring equipment in the launch shaft including line and grade control points, ventilation system, entry/egress system, rail anchorage system, sump pump, and method preventing lubrication from entering shaft for each location.
- I. Layout of HAB equipment and above ground equipment at each shaft location and denoting crane swing and restrictions.
- J. Lubrication formulation shall use potable water and NSF 060

fluids and additives. NSF 060 acceptance shall be based upon the fluid remaining in the ground. No hydrocarbon based fluids and additives shall be used.

- K. Calculations of theoretical annular space volumes for each location, and lubrication volumes, pump rates, and pressures required to completely fill the theoretical annular space.
 - L. Lubrication mixing system details. Information about the lubrication to be used, including product information, material specifications, and handling procedures; material safety data sheet and special precautions required; methods of mixing and application; and disposal plan. Circulating pump capacity as measured by volume, density, and psi shall exceed maximum anticipated requirements by 20%.
 - M. Method of spoil removal, disposal method, and legal disposal location.
 - N. Electrical system, lighting system, and onsite power generation.
 - O. Guidance and steering method for ensuring HAB is within design line and grade tolerances as the tunnel is excavated. Method may include pulling augers and surveying inside of casing.
 - P. Upon the completion submit written notices as required and in accordance with the railroad requirements.
- 4. The Contractor shall submit daily production reports for the ENGINEER's review within 1 working day following collection of data.
 - 5. Submit as-built drawings to a scale not less than the contractor drawings and of sufficient scale demonstrating the carrier pipe was installed to the specified tolerances.

306-25.3 HAB System Equipment. The HAB equipment shall consist of a power unit, auger boring head, rails, a lubrication system, and a guidance or location system.

306-25.3.1 Power Unit. A power delivery system of a diesel engine and transmission drives a hydraulic power pack used to provide forward thrust and rotational control to the auger. The system includes a throttle control, forward and reverse gears for auger rotation, hydraulic power pack for thrust, and hydraulic controls for thrust and retraction. The front of the auger rotation unit provides for the removal of the spoils from the casing to windrow along the guide rails and the load transfer surface used to engage the casing. The power unit and rails shall be anchored to withstand the pulling, pushing and rotating forces required to complete the project. The power unit shall be free of leaks. The power unit shall have operational gauges for monitoring engine performance, thrust and auger torque.

Provide conversion factors.

306-25.3.2 Auger Boring Head. Auger boring head shall include a system of tools used to excavate the anticipated ground and shall be of an appropriate design for the ground being excavated. Include lubrication system. Include guidance or location system.

1. The guidance or location system shall be capable of meeting the tolerances specified herein.
2. The guidance or location system shall provide the vertical and horizontal position of the auger head with ranges in line and grade compatible with the carrier pipe line and grade design requirements specified herein.
3. Minimum allowable annular overcut for railroad permitted crossings is 0.75 inches. Maximum allowable overcut for railroad permitted crossings is 1.25 inches.

306-25.3.3 Rails. The rails shall be firmly anchored to resist jacking forces without undue movement and to provide guidance to install the casing to design line and grade. The guide rails shall not be in contact with the shoring unless the shoring is designed to resist the thrust and retraction load.

306-25.3.4 Casing Installation Tolerances. The casing shall be installed so that the carrier pipe is installed within the design tolerances of ± 0.5 inch to design grade, ± 1.0 inches to design line, and no reverse grades or ponding. The carrier pipe shall have at least 2.0 inches of separation between the outer most projection of the carrier pipe and the inner most projection of the casing pipe. The carrier pipe shall be laid in a relatively straight line minimizing angular deflection.

306-25.4 Quality.

1. Daily production records headers are to include project name, general contractor, representative, HAB contractor, representative, date, time, location, anticipated jacking distance, design line and grade, and casing size. For each casing pipe include: operator, jacking location before commencing, line and grade before commencing, HAB start and end time, casing welding start and end time, maximum jacking force and torque encountered, jacking location upon completion, line and grade upon completion, any adjustments to line and grade, observations of settlement, and any operating issues, delay time, and cause of delay.
2. The Contractor shall operate the HAB so as to minimize ground movement as specified in 306-24 Geotechnical Instrumentation for Ground Movement.
3. Contractor shall attempt to inject lubrication at a flow rate and pressure

that completely fills the theoretical annular space.

4. Coordinate with other related specifications including:
 - a) 306-24 Geotechnical Instrumentation for Ground Movement
 - b) 306-26 Shafts
 - c) 306-27 Jacked Steel Casing
 - d) 306-28 Contact Grouting
 - e) 306-29 Insertion of Carrier Pipe in Casing

306-25.5 Restoration. Contractor shall restore surface, structures, and improvements to previous condition unless otherwise specified. Contractor shall remove all construction debris, materials, equipment, and legally dispose of all waste.

306-25.6 Measurement. HAB will be measured per the unit completed, Lump Sum.

306-25.7 Payment. HAB will be paid per the item completed, Lump Sum for Trenchless Construction – (by location) Bid Item, including all work appurtenant to constructing the tunnel and installing a complete and operational pipeline within the limits shown on the Plans and as specified herein except those items specifically priced elsewhere such as but not limited to the surface restoration, traffic control, and water pollution control.

ADD:

306-26 SHAFTS.

306-26.1 General. Shafts are site specifically designed and constructed excavations, typically used as temporary works for the construction of permanent works. Shafts require a site specific design signed and sealed by a California (CA) licensed professional engineer (PE). A shaft is typically characterized by the length and/or width being less than the depth.

1. Pits are generic excavations typically supported using a pre-engineered support systems or laid back sidewalls as allowed by CalOSHA requirements. Pits rely upon dewatering systems to remove groundwater.
2. A shaft design may also be required. For this project site specific shaft designs are required due to MTS requirements and are referred to herein as shafts.
3. Shafts are to be dewatered to at least 2.0 feet below the excavation and remain free of water for the duration of construction. Sump pumps are

required in all shafts and pits for the removal of incidental construction water, incidental leakage, and rainfall which are to be minimized through other controls. Sump pumping is not an acceptable means of dewatering or lowering the groundwater level.

4. Shaft side wall shall have a minimum factor of 2.0 against sliding. The shaft invert shall have a minimum factor of 1.5 against bottom heave.
5. Shaft shoring shall be in intimate contact with the ground and internal support members.
6. All submittals for work within the railroad right-of-way (ROW) are subject to railroad review, comment, and Right of Entry Permit requirements.
7. All work completed within the railroad ROW is subject to railroad review, inspection, acceptance, and Right of Entry Permit requirements.

306-26.2 Shaft Contractor's Qualifications and Submittals.

1. Shaft submittals shall be coordinated with all relevant submittals, assembled and submitted as a single, comprehensive submittal.
2. The Contractor shall be experienced in the design and construction of shafts.
3. The Contractor shall submit the following items for the Engineer's acceptance prior to ordering materials and the start of the Work:
 - A. List of past shaft projects successfully completed by the personnel leading the work, superintendent/foreman and shaft excavation equipment operator if specialized equipment is used, including at least 5 shafts in each of the last 5 years for a total of 25 shafts.
 - B. If specialized shaft excavation equipment is used then preprinted machine specifications or a letter from the equipment manufacturer demonstrating that the selected machine(s) is capable of progressing through the anticipated ground conditions as defined in 306-25 and is suitable for the maximum size and scope of the Project.
 - C. List of past shaft projects successfully designed by the engineer leading the work, a CA PE, including at least 5 shafts in each of the last 5 years for a total of 25 shafts.
 - D. Experience record - For each project listed for experience include: project name, project location, month and year work completed, project owner, project owner's contact, project owner's contact information, casing size, length, soil type, tunneling method, and

if work was completed for a general contractor (GC) GC's name, GC's contact, and GC's contact information for each project.

- E. Construction procedure for each step of the shaft sequence commencing with clearing of utilities through restoration.
 - F. Contingency plans for approval for the following potential conditions:
 - a) Encountering unanticipated ground types including boulders, unanticipated ground behavior, unanticipated groundwater, and unanticipated man-made structures.
 - b) Ground loss of more than 0.25 cubic yard from shaft wall penetration or retrieval.
 - c) Shaft wall deflects more than 80% of anticipated maximum allowable deflection calculated during design.
 - G. If manufactured shoring is used provide shoring manufacturer's written recommendations for transporting, handling, storage, installing, and repair of shoring. If manufactured shoring is used provide written shoring manufacturer's specifications and drawings denoting physical properties, dimensions, and manufacturing and inspecting requirements.
 - H. Calculations indicating that the shoring method or process used does not exceed the allowable tensile and compression limits of the shoring and the shoring can withstand the final in place loading.
 - I. Layout of excavation equipment and above ground equipment at each shaft location.
 - J. Method of spoil removal, spoil disposal, disposal location, and required disposal permits.
 - K. Electrical system, lighting system, and onsite power generation.
 - L. Review and sign the HAB work plan and calculations acknowledging the work does not negatively impact and is compatible with the shaft design.
4. Ventilation system based upon contractor's construction method, manpower, and CalOSHA requirements.

306-26.3 Shaft Location and Size.

1. The shafts shall be located such that their total number shall be minimized and the length of replacement pipe installed in a single reach maximized. Locations of appurtenances, angle points, and valves shall be used for shafts when feasible.
2. Excavation shall be within the easements or ROW to the lines and grades designated on the drawings. The Contractor shall size and locate shafts so they minimize interferences with vehicular and pedestrian traffic and subsurface structures. If the traffic plans cannot accommodate the location or size of the proposed shaft, the Contractor shall be responsible for the changes or new plans required in accordance with 7-10, "PUBLIC CONVENIENCE AND SAFETY."
3. Shafts shall be protected (e.g., chain link fencing, K-rail, or plating) to prevent entry of unauthorized persons and vehicular traffic from accidentally entering the shafts.

306-26.4 Shaft Site Location Preparation. The Site as indicated on Plans shall be graded or filled to provide a level working area. No alterations beyond what is required for operations shall be made. The Contractor shall confine all activities to designated Work areas.

306-26.5 Ground Monitoring. The Contractor shall comply with Section 306-24 of these specifications.

306-26.6 Quality Control.

1. The Contractor shall design, construct, and maintain shoring as specified herein.
2. Minimize ground movement as specified in 306-24 Geotechnical Instrumentation for Ground Movement.
3. Coordinate with other related specifications including:
 - a) 306-24 Geotechnical Instrumentation for Ground Movement
 - b) 306-25 Horizontal Auger Boring
 - c) 306-27 Jacked Steel Casing
 - d) 306-28 Contact Grouting
 - e) 306-29 Insertion of Carrier Pipe in Casing

306-26.7 Restoration. Contractor shall restore surface, structures, and improvements to previous condition unless otherwise specified. Contractor shall remove all

construction debris, materials, equipment, and legally dispose of all waste.

306-26.8 Measurement. Shafts shall be included within the appropriate Lump Sum Trenchless Construction – (by location) Bid Item.

306-26.9 Payment. Payment for shafts, including all work appurtenant to constructing the shafts and installing a complete and operational pipeline within the limits shown on the Plans and as specified herein, is incidental to and included in the Lump Sum Trenchless Construction – (by location) Bid Item.

ADD:

306-27 JACKED STEEL CASING.

306-27.1 General. Jacked steel casing serves as the initial ground support during excavation, transfers the forward thrust from the jacking system to the face, contains the spoils for internal transportation of the spoils, and serves as a protective casing for the installed carrier pipe. The lubrication and guidance system conduits are typically attached to the outside of the steel casing avoiding being damaged by the auger.

1. All submittals for work within the railroad right-of-way (ROW) are subject to railroad review, comment, and Right of Entry Permit requirements.
2. All work completed within the railroad ROW is subject to railroad review, inspection, acceptance, and Right of Entry Permit requirements.

306-27.2 Contractor's Qualifications and Submittals.

1. Jacked Casing Pipe submittals shall be coordinated with all relevant submittals, assembled and submitted as a single, comprehensive submittal
2. The Contractor shall be experienced in using the horizontal auger boring (HAB) method for the installation of steel casings between 24-and 48-inches outside diameter (OD).
3. The Contractor shall submit the following items for the Engineer's acceptance prior to ordering materials and the start of the Work:
 1. List of past HAB projects where steel casing was successfully installed including at least 10 drives of at least 150 feet each in each of the last 5 years.
 2. Experience record - For each project listed for experience include: project name, project location, month and year work completed, project owner, project owner's contact, project owner's contact information, casing size, length, soil type, tunneling method, and if work was completed for a general contractor (GC) GC's name,

GC's contact, and GC's contact information for each project.

3. Certification from the casing pipe manufacturer that the casing is new, has square ends, straight and true as specified herein, and of the specified materials and welding.
4. Field welder shall be certified as specified herein.
5. List of past tunnel projects where the contractor's CA PE has performed similar calculations for jacking force and maximum allowable jacking load on the installed casing. The personnel leading the work shall have completed at least 5 similar calculations in each of the last 5 years.
6. Jacking force calculations prepared by a CA PE experienced in jacking force calculations showing the casing pipe exceeds the maximum anticipated jacking forces, as measured by the worst case, by at least 25%. Calculations prepared by a CA PE experienced in preparing maximum allowable jacking load showing the casing exceeds maximum anticipated jacking forces, as measured by the worst case, by at least 25% with a minimum factor of safety of 2.0 unless otherwise determined by the PE. Provide source of equations and factors used in performing calculations that are acceptable to Engineer. Calculations demonstrating the casing is of sufficient design for AREMA E-80 loading.
7. Construction procedure for casing pipe installation from lifting casing to setting it on rails to commencing with the jacking operation including casing alignment and verification of true mated joints.
8. Contingency plans for approval for the following potential conditions:
 - a) Joint is not properly welded.
 - b) Lubrication and/or guidance features are not properly secured.
 - c) Field weld fails during jacking.
 - d) Pipe is welded with directional bias.
9. Casing pipe manufacturer's written recommendations for shipping, handling, storage, lifting, welding, and repair of pipe.
10. Detailed dimensioned drawing showing leading edge treatments for steel casing.

11. Dimensioned drawing showing any and all modifications to the steel casing pipe.
 12. Dimensioned drawing showing placement of the carrier pipe to design line and grade within the steel casing pipe as specified in section 306-25.
4. The Contractor shall submit daily production reports for the Engineer's review within 1 working day following end of shift.

306-27.3 Quality.

1. Steel casing pipe – Shall comply with railroad requirements and AREMA E-80 design load. Steel casing shall be ASTM A-36, ASTM A515, grade 60 or ASTM A572, grade 42.
2. Pipe roundness shall not vary more than $\pm 1\%$ from the specified diameter. Pipe outside circumference shall not vary more than $\pm 1\%$ from the nominal circumference based on the specified diameter, or $\pm 3/4$ -inch maximum. Pipe wall thickness of the steel pipe sections shall not vary more than 5% under the nominal wall thickness specified. Maximum pipe straightness deviation in any 10-foot length shall be 1/8-inch. The maximum straightness deviation in fabricated sections up to 40 feet shall be 3/8-inch.
3. Casing thickness shall be a minimum of 0.5 inches.
4. Grout ports shall be at one per 20 feet of installed casing with the first port at 10 feet from leading edge. Grout ports are to be systematically rotated about the vertical axis.
5. Welders shall be qualified under the provisions of ANSI/AWS D1.1 by an independent local, approved testing agency not more than 6 months prior to commencing work on the casing.
6. Coordinate with other related specifications including:
 - a) 306-24 Geotechnical Instrumentation for Ground Movement
 - b) 306-25 Horizontal Auger Boring
 - c) 306-26 Shafts
 - d) 306-28 Contact Grouting
 - e) 306-29 Insertion of Carrier Pipe in Casing

306-27.4 Inspection. Immediately prior to placing the casing pipe into the casing pipe string, the Contractor shall inspect the casing pipe and ensure the casing pipe is

as specified with square ends has been properly prepared for welding or is using new Permalok™ interlocking mechanical joints.

306-27.5 Payment Measurement. Steel casing pipe shall be included within the appropriate Lump Sum Trenchless Construction – (by location) Bid Item.

306-27.6 Payment. Steel casing pipe including all work appurtenant to the construction of a complete and operational pipeline within the limits shown on the Plans and as specified herein, is incidental to and included in the Lump Sum Trenchless Construction – (by location) Bid Item.

ADD:

306-28 CONTACT GROUTING.

306-28.1 General. Contact Grouting is a method used to minimize systemic settlement by injecting a neat cement grout between the jacked casing and the ground. Contact grouting is placed immediately after the jacked steel casing is completed and before before the steel casing is surveyed to determine the placement of the carrier pipe within the casing.

Perform or attempt to perform contact grouting at all ports and locations specified herein. Perform grouting until “No Take.” Grout “No Take” shall be defined as upon hook-up and pressurization failure for 0.5 cubic feet of grout to enter the port measured at the port in five minutes at anticipated pressure measured at the port.

All submittals for work within the railroad right-of-way (ROW) are subject to railroad review, comment, and Right of Entry Permit requirements.

All work completed within the railroad ROW is subject to railroad review, inspection, acceptance, and Right of Entry Permit requirements.

306-28.2 Contractor’s Qualifications and Submittals.

1. Contact grouting submittals shall be coordinated with all relevant submittals, assembled and submitted as a single, comprehensive submittal.
2. The Contractor shall be experienced in the mixing and placement of contact grout. The Contractor’s Engineer shall be a Professional Engineer registered in the State of California.
3. Submitted calculations shall be signed and sealed by a Professional Civil Engineer registered in the State of California. Calculations shall clearly identify all parameters used, state all assumptions made in the calculations, and identify all sources of information.

4. All shop drawings shall be legible with dimensions accurately shown and clearly marked in English.
5. The Contractor shall submit the following items for the Engineer's acceptance prior to the start of the Work:
 - A. List of past tunnel projects where steel casing pipe was successfully contacted grouted by the personnel leading the work, including at least 10 drives of at least 150 feet each in each of the last 5 years. Each project listed to include project name, project owner, project owner's contact, project owner's contact information, jacking pipe size, length, soil type, tunneling method, and if work was completed for a general contractor (GC) GC's name, GC's contact, and GC's contact information for each project.
 - B. List of past tunnel projects where the contractor's Engineer has performed similar anticipated injection pressure calculations and estimated grout volume calculations. The personnel leading the work shall have completed at least 5 similar calculations in each of the last 5 years, and current reference for each project.
 - C. Preprinted grout mixing and pumping equipment specifications demonstrating that the selected machine(s) is capable of providing contact grout for the project based upon the worst case scenario.
 - D. Grout mix (water-cement) ratios shall be expressed in cubic feet of water per cubic foot of cement (94 pound bag). The water-cement ratio by volume shall be varied as needed to fill the voids outside the jacking pipe. The range of water-cement ratios shall be between 1:1 and 2:1 by volume. Provide MSDS for each product.
 - a) Cement shall be Type V Portland cement conforming to ASTM C150.
 - b) Bentonite shall be a commercially processed powdered bentonite, Wyoming type; NSF/ANSI Standard 060 compliant
 - c) Potable water.
 - d) Fluidizers, or fluidifiers, shall hold the solid constituents of the grout in colloidal suspension, be compatible with the cement and water used in the grouting work, and comply with the requirements of ASTM C937.
 - e) Admixtures shall be accepted by the Engineer. If

commercially available and acceptable to the product manufacturer all polymers, and additives, other than soda ash, shall be NSF/ANSI Standard 060 compliant.

- f) Provide Engineer with the cumulative test results within 2 working days of testing.
- E. Grout mix strength tests. Prepare samples using the design mix for testing and modify mix so as to attain desired results which is the field mix. Take field mix samples and test.
- a) Prepare and test samples for 24-hour, 7-day, and 28-day compressive strength tests according to ASTM C39 for cylinders or ASTM C109 for cubes, except as otherwise specified herein.
 - b) Take grout for the cylinders or cubes from the nozzle of the grout injection line. Provide at least one set of four (4) samples for each 100 cubic feet of grout injected, but not less than one set for each batch in accordance with ASTM C31
 - c) Provide Engineer with the cumulative test results within 2 working days of testing.
- F. Procedure for contact grout mixing and injection including:
- a) Location and installation of grout ports shall be as specified in Section 306-27.
 - b) Mix formulation and measurement to ensure cured material requirements are met.
 - c) Anticipated injection pressures and volumes.
 - d) Close and weld each grout port.
 - e) Disposal of excess grout. Injection of waste materials into the annular space is strictly prohibited.
 - f) Inspect casing for roundness and repair any buckling.
 - g) Clean-up of casing following grouting and repair.
- G. Contingency plans for approval for the following potential conditions:
- a) Observing fluid on the surface or flowing in other undesirable locations.

- b) Fluid does not Take through injection valve assembly.
 - c) Buckling of casing.
 - H. Initial certification within the last 1 month demonstrating gauges are accurate as specified. Gauges are to be recertified every 6 months thereafter.
 - I. Calculations prepared by Contractor’s Engineer experienced in contract grouting calculations. Include anticipated injection pressure calculations and estimated grout volume calculations.
 - J. Coordinate with other related specifications including:
 - a) 306-24 Geotechnical Instrumentation and Ground Movement
 - b) 306-25 Horizontal Auger Boring
 - c) 306-26 Shafts
 - d) 306-27 Jacked Steel Casing
 - e) 306-29 Insertion of Carrier Pipe in Casing
 - K. Sample Grouting Log that is acceptable to Engineer including grouting location, estimated pressure, actual pressure, volume, and grout mix pumped, time of pumping, mixer person and person at grout port. Note any problems or unusual observations on logs.
- 6. The Contractor shall submit Grouting Log for the Engineer’s review within 1 working day following the collection of data. Sign each form.

306-28.3 Contact Grouting System.

- A. Contact grouting system consists of a mixer, pump, hoses, and injection nozzle and gauges. Complete contact grout from downstream to upstream end and connect to each port. Recirculate grout through hoses for at least 2 minutes before attempting to grout.
- B. Grouting in any single port shall be considered complete when “No-take” condition is met or when the grout flows through the next grout port or shaft at the same rate as the rate of pumping.

306-28.3.1 Mixing and Pumping Equipment. The mixing equipment shall be capable of removing lumped or congealed product before entering the mixer, providing a thoroughly mixed free flowing fluid, and delivering the fluid at a steady state pressure with a variable volume. The fluid shall be mixed at all times until either

used or the material is wasted. Flush the entire grout system and dispose of the waste materials.

306-28.3.2 Hosing and Valving.

- A. Hosing shall provide a re-circulation loop between the mixer and the injection valve which is located within 2 feet of the injection port.
- B. The injection valve shall include a pressure gauge and volumetric gauge at the point of injection.
- C. The pressure gauge shall be accurate to within 1 psi at the estimated injection pressure.
- D. The volumetric gauge shall be accurate to within 0.1 cubic foot at the estimated injection pressure.

306-28.3.3 Contact Grout Mix.

- A. Grout mix shall be composed of clean water and the appropriate additive(s) for the fluid to be used. Water shall be from a clean source and shall meet the mixing requirements of the manufacturer. The water and additives shall be mixed thoroughly to assure the absence of any clumps or clods. No hazardous additives may be used.
- B. Grout shall consist of Portland cement, not more than 2 percent bentonite by weight of cement, fluidizer as necessary, and water in the proportions specified herein or acceptable to the Engineer. Sand is an allowed additive to the grout mix in instances of very high grout takes, more than 1 cubic yard, as accepted by the Engineer, but in no case shall the grout mix contain less than six sacks of cement per cubic yard of grout. The addition of water or fluidizer is permitted when sand is added to the grout mix.
- C. Provide grout with a minimum unconfined compressive strength (UCS) of 100 pounds per square inch (psi) in 24 hours, 300 psi in 7 days, and 500 psi in 28 days.
- D. Dispose of grout not injected after 90 minutes of mixing.

306-28.4 Ground Monitoring. The Contractor shall monitor for ground movement associated with the Work and shall maintain no ground settlement or heave.

306-28.5 Inspection.

- A. Weld and reduce water inflow to less than 1.0 gallon per minute over the entire drive before performing contact grouting.
- B. The Contractor shall, with Engineer present and within reasonable

proximity to the Contractor, upon completion of contact grouting tap the casing with a hammer to ensure filling of the annular space. If any void is detected and based upon further soundings is determined to either connect with an existing port or estimated to exceed 3 square feet make a reasonable attempt to tap the casing, install a one-way valve, and inject additional contact grout so as to fill the void. Upon completion of grouting, install and weld a pipe plug into the tapped hole.

306-28.6 Restoration. Contractor shall restore surface, structures, and improvements to previous condition unless otherwise specified. Contractor shall remove all construction debris, materials, equipment, and dispose of all waste.

306-28.7 Cleaning. The Contractor shall scrap, brush, and wash the inside of the casing pipe so as to remove excess grout and deleterious materials.

306-28.8 Measurement. Contact grouting shall be included within the appropriate Lump Sum Trenchless Construction – (by location) Bid Item.

306-28.9 Payment. Payment for contact grouting, including all work appurtenant to constructing the tunnel and installing a complete and operational pipeline within the limits shown on the Plans and as specified herein, incidental to and is included in the Lump Sum Trenchless Construction – (by location) Bid Item.

ADD:

306-29 INSERTION OF CARRIER PIPE IN CASING.

306-29.1 General. Installation of a carrier pipe in a casing is completed after a casing is installed, cleaned, and surveyed. The survey is used to determine the final placement of the carrier pipe within the casing to meet the design requirements.

All submittals for work within the railroad right-of-way (ROW) are subject to railroad review, comment, and Right of Entry Permit requirements.

All work completed within the railroad ROW is subject to railroad review, inspection, acceptance, and Right of Entry Permit requirements.

306-29.2 Contractor's Qualifications and Submittals.

1. Insertion of Carrier Pipe submittals shall be coordinated with all relevant submittals, assembled and submitted as a single, comprehensive submittal.
2. The Contractor shall be experienced in the work described herein.
3. The Contractor shall submit the following items for the Engineer's acceptance prior to ordering materials and the start of the Work:

- A. List of past projects successfully completed by the personnel leading the work, including at least 10 drives of at least 150 feet each in each of the last 5 years, and current reference for each project.
 - B. Experience record - For each project listed for experience include: project name, project location, month and year work completed, project owner, project owner's contact, project owner's contact information, casing size, length, soil type, tunneling method, and if work was completed for a general contractor (GC) GC's name, GC's contact, and GC's contact information for each project.
 - C. Preprinted or a signed and sealed letter from each the (1) pipe manufacturer's PE, (2) end seal manufacturer's PE, and (3) casing spacer manufacturer's PE detailing the installation and the manufacturer's special handling and installation requirements for a complete and operational pipeline as specified herein. The casing spacer manufacturer's PE is to also demonstrate that the casing spacers will not fail under the installation loads with a minimum factor of safety of 2.0 or that recommended by the casing spacer manufacturer. Casing spacer and pipe manufacturer are to specifically address minimum and maximum spacing of the selected casing spacer.
 - D. Drawings, assembly instructions, calculations, and other materials demonstrating that the casing spacers are designed as specified herein.
 - E. Written assembly instructions demonstrating the correct procedures and spacing so as to not damage the carrier pipe.
 - F. Drawings, assembly instructions, and other materials demonstrating the correct installation procedures and handling so as to not damage the carrier pipe and end seal.
 - G. Contingency plans for acceptance for the following potential conditions:
 - a) Survey does not confirm an acceptable carrier pipe alignment.
 - b) Carrier pipe is damaged beyond acceptable tolerances during installation.
4. The Contractor shall submit the as-built drawings confirming the casing pipe alignment and that the carrier pipe can be installed to design line and grade as specified in 306-25 or prepare an alternative design for the Engineer's acceptance prior to placing the carrier pipe. Drawings shall be

acceptable to the Engineer and at a scale not less than 1-inch to 40 feet horizontally and 1-inch to 10 feet vertically.

5. The Contractor shall submit the following items for the Engineer's acceptance upon completion of the installation and before placing the pipeline in service:
 - A. Contractor to inspect and provide documentation of post construction condition of other subsurface features. Take date and time stamped pictures to document post-construction condition.
 - B. Contractor to inspect and provide documentation of completed pipeline.

306-29.3 End Seal Design. Each end seal shall be designed to withstand installation and construction loads per the contractor's design and install the carrier pipe to the tolerances specified in section 306-25. The end seals shall be made of synthetic rubber, conical shape, pull-on or wrap-around style with Type 304 stainless steel bands. End seals are designed to prevent inflow of backfill and groundwater.

306-29.4 Casing Spacers. The casing spacers shall be designed to provide cathodic isolation of the carrier pipe from the casing pipe, support the fully operational carrier pipe, designed so as to not point load the carrier pipe, withstand the installation forces, and install the carrier pipe within the design tolerances as specified in section 306-25. The casing spacer shall be symmetrical about the vertical axis in its design using an even number of legs and risers and use wear resistant materials for the runners which are surfaces that are designed to come in contact with the casing and use a design that allows the runner to move across uneven surfaces such as weld beads. Legs support the weight and installation loads and risers restrain flotation. Wood skids are not permitted.

306-29.5 Video Inspection and Cleaning. Prior to pipeline CCTV inspection, the Contractor shall perform cleaning in accordance with 500-1.1.4, "Cleaning and Preliminary Inspection". The Contractor shall inspect the installed carrier pipe immediately upon completion and before placing the pipeline in service in accordance with 500-1.1.5, "Video Inspection."

306-29.6 Quality Control.

1. Pipeline constructed and not meeting the requirements of the Contract Documents shall be redesigned by the contractor's PE and meet the requirements.
2. As-built carrier pipeline shall always be within the confined right of way. As-built grade shall always intersect the tie-in, provide a properly functioning pipeline, and be free of reverse grade and ponding of free standing water. The carrier pipe shall be laid in a relatively straight line minimizing each joint's angular deflection.

3. The Contractor shall not install the carrier pipe, if upon inspection completed immediately before installation, gouges or excessive surface damage of more than 20% of the maximum allowable gouge as allowed by the manufacturer's design is detected. Contractor shall remove defective pipe and reassemble the pipe string.
4. Contractor shall cut, remove, and inspect 5 feet of carrier pipe after passing through casing. If upon inspection, carrier pipe is gouged or has excessive surface damage of more than 80% of the maximum allowed by the manufacturer's design. Contractor shall remove carrier pipe, clean casing, reassemble the pipe string removing damaged sections as specified herein, and reinstall carrier pipe as specified herein.
5. The carrier pipe shall be installed as specified in section 306-25.
6. Coordinate with other related specifications including:
 - a) 306-24 Geotechnical Instrumentation and Ground Movement
 - b) 306-25 Horizontal Auger Boring
 - c) 306-26 Shafts
 - d) 306-27 Jacked Steel Casing
 - e) 306-28 Contact Grouting

306-29.7 Clean-up. Contractor shall inspect other subsurface features and ensure that the feature is free of grout. Contractor shall remove all construction debris, materials, equipment, and dispose of all waste.

306-29.8 Measurement. Carrier pipe for trenchless work shall be included within the appropriate Lump Sum Trenchless Construction – (by location) Bid Item.

306-29.9 Payment. Carrier pipe installation including all work appurtenant to constructing the tunnel and installing a complete and operational pipeline within the limits shown on the Plans and as specified herein, incidental to and is included in the Lump Sum "Trenchless Construction (Work location)" Bid Item.

SECTION 314 - TRAFFIC STRIPING, CURB AND PAVEMENT MARKINGS, AND PAVEMENT MARKERS

314-4.3.7 Payment. To the "GREENBOOK", ADD the following:

1. The payment for the replacement of existing traffic striping, pavement markings, and pavement markers shall be included in the Bid item for

“Striping” and shall also include the payment for new installations of traffic striping, pavement markings, and pavement markers.

314-4.4.6 Payment. To the “WHITEBOOK”, DELETE in its entirety and SUBSTITUTE with the following:

1. No separate payment shall be made for establishing alignment for stripes and layout Work.
2. The payment for the installation of proposed thermoplastic striping and thermoplastic pavement markings, in accordance to the Plans, shall be included in the Bid items for “Thermoplastic Traffic Striping” and “Thermoplastic Pavement Markers”, when provided.
3. The payment for the replacement of thermoplastic striping and thermoplastic pavement markings shall be included in the Lump Sum Bid item for “Thermoplastic Traffic Striping and Thermoplastic Pavement Markings”.
4. The payment for the thermoplastic traffic striping of continental crosswalks shall be included in the Bid item for “Continental Crosswalks”.
5. The payment for the replacement of existing traffic striping, pavement markings, and pavement markers shall be included in the Bid item for “Striping” and shall also include the payment for new installations of traffic striping, pavement markings, and pavement markers
6. Painting traffic stripes, pavement marking, reflectors, raised reflective pavement markings including curb markings, curb painting, thermoplastic arrows, thermoplastic continental cross walks, arrows and the removal of all existing stripes and markings in conflict with the proposed striping Plan, if needed or otherwise called out for removal and temporary striping, complete in place in accordance with **sheets 38032-1-D through 38032-7-D**, the Standard Specifications, and these Special Provisions, and as directed by the Engineer shall be included in the Contract lump sum price for “Thermoplastic Pavement Markings”.

SECTION 700 – MATERIALS

700-9.1 Pedestrian Barricade. To the “WHITEBOOK”, DELETE in its entirety and SUBSTITUTE with the following:

2. Pedestrian barricades shall be constructed in accordance with the City of San Diego Standard Drawing SDE-103, “Pedestrian Barricade”.
3. Curb ramp barricades shall be constructed in accordance with the City of San Diego Standard Drawing SDG-140, “Curb Ramp Barricade”.

4. Assembly shall be commercial quality galvanized material.

SECTION 701 - CONSTRUCTION

701-2 PAYMENT. To the "WHITEBOOK", ADD the following:

19. The payment for Pedestrian Barricades shall be included in the Bid item for each "Pedestrian Barricade".
20. The payment for Curb Ramp Barricades shall be included in the Bid item for each "Curb Ramp Barricade".
21. The payment for Relocating and Installing Pedestrian Push Button Poles shall be included in the Bid item for each "Relocate/Install Pedestrian Push Buton Pole".
22. Work associated with Traffic Signal modifications on **sheets 38032-1-D through 38032-7-D** shall include full compensation for removal and salvaging of existing equipment, furnishing and installing street light and traffic signal standards, posts, pedestals and foundations, pedestrian push buttons, count down times, pedestrian signal heads and hardware, vehicle detector loops, signal and lighting electrical service and switches, luminaires, lamps, ballasts, electrical conduits, conductors and cable, traffic signal and electrical pull boxes, signal heads, city furnished emergency vehicle preemption equipment, furnishing and installing controller assembly, furnishing and installing lighting service cabinet, central control unit, all signs and a conflict monitor unit, and other such items as required on the Plans or these Special Provisions, **shall be included in the Lump Sum Price for " Traffic Signal Modifications"** except for Work covered in separate bid items, and no additional compensation will be allowed.

EQUAL OPPORTUNITY CONTRACTING PROGRAM (EOCP) SECTION A - GENERAL REQUIREMENTS

4.1 Nondiscrimination in Contracting Ordinance. To the "WHITEBOOK", subsection 4.1.1, paragraph (2), sentence (1), DELETE in its entirety and SUBSTITUTE with the following:

You shall not discriminate on the basis of race, gender, gender expression, gender identity, religion, national origin, ethnicity, sexual orientation, age, or disability in the solicitation, selection, hiring, or treatment of subcontractors, vendors, or suppliers.

END OF SUPPLEMENTARY SPECIAL PROVISIONS (SSP)

TECHNICALS

TECHNICAL SPECIFICATIONS
30th Street Pipeline Replacement

SECTION TITLE

CSI FORMAT TECHNICAL SPECIFICATIONS

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13370	CONTROL PANELS
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13414	FLOW COMPUTER KIT- METERING VALVE
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SECTION 13111

CATHODIC PROTECTION

PART 1 - GENERAL

1.1 WORK OF THIS SECTION

- A. The Contractor shall provide all labor, materials, tools, and incidentals to install a cathodic protection system for the new 16-inch, 36-inch and 42-inch Cement Mortar Lined and Tape Coated/Mortar Coated (CML&TCMC) steel potable water pipeline including all electrical connections, anodes, rectifiers, test stations, insulators, enclosures, and all accessories required for a complete and operable system.
- B. The Contractor shall retain a qualified Corrosion Engineer to direct the construction of facilities specified herein. The Corrosion Engineer shall test and certify that the corrosion control facilities for this project are constructed properly and as specified, and are fully functional.

1.2 DEFINITIONS

- A. Contractor: The licensed prime installer selected by the Owner to install the pipeline.
- B. Owner: The City of San Diego.
- C. Corrosion Engineer: A qualified Corrosion Engineer retained by the Contractor who is either a Registered Professional Corrosion Engineer or NACE-International Certified Cathodic Protection Specialist or Corrosion Specialist.
- D. Engineer: The City of San Diego's Resident Engineer or designated representative.
- E. City's Corrosion Engineer: The Engineer's appointed representative from the City's Corrosion Section.

1.3 CONTRACTOR QUALIFICATIONS

- A. All work must be conducted by qualified, experienced personnel working under continuous, competent supervision. Qualified Contractors must demonstrate at least five years of experience with cathodic protection installations. The drilling subcontractor and well drilling foreman must have at least five years of experience with the installation of deep well anodes. Cathodic protection installation and testing shall be done under the direct supervision of a Corrosion Engineer. The Contractor

doing the electrical installations and well drilling work shall have proper valid State of California licenses.

1.4 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

- A. Commercial Standards:
1. A497 – Steel Welded Wire Reinforcement
 2. ASTM A615 - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
 3. AWWA C217 - Wax Coating Systems for Underground Piping Systems
 4. Bulletin 74 - California Well Standards
 5. Green Book - Standard Specifications for Public Works Construction, 2012 edition
 6. Mil-C-18480-B - Coating Compound, Bituminous, Solvent, Coal Tar Base
 7. NACE SP0169 - Standard Practice, Control of External Corrosion on Underground or Submerged Metallic Piping Systems
 8. NACE SP0572 - Design, Installation, Operation, and Maintenance, of Impressed Current Deep Groundbeds
 9. NACE SP0286 - Electrical Isolation of Cathodically Protected Pipelines
 10. NEC 70 – National Electrical Code
 11. NEMA LE - Cotton Phenolic Resin – Electrical Grade
 12. NEMA CE - Canvas Phenolic Resin - General Purpose Grade
 13. NEMA 3R - Enclosures for Outdoor Applications
 14. NEMA MR-20 – Semiconductor Rectifiers Cathodic Protection Units
 15. NEMA WC 70 – Power Cables Rated 2,000 Volts or Less
 16. NEMA G10 – Glass Reinforced Epoxy
 17. NFPA 70 - National Electrical Code (NEC)
 19. UL 514 - Metallic Outlet Boxes
 20. Standard Specifications of Public Works Construction City Supplement (White Book) latest edition
 21. Standard Drawings for Public Works Construction latest edition.

1.5 CONTRACTOR SUBMITTALS

- A. The Contractor shall furnish the following documents (Submittals) AS ONE SUBMITTAL PACKAGE:
1. Catalog cuts and other information for products to be used including:
 - a. Mixed Metal Oxide Anodes
 - b. Anode Centering Devices
 - c. Calcined Coke
 - d. Deep Anode Construction Materials
 - e. Anode Wellhead Vault
 - e. Ornamental Enclosure
 - f. AC Meter Pedestal
 - g. AC Disconnect Switch

- h. Manual Controlled Rectifier
 - i. Anode Shunt Panel
 - j. Conduit and Fittings
 - k. Wire, Leads, and Cable
 - l. Anode Shunts
 - m. Ready Mix Concrete
 - n. Plastic Warning Tape
 - o. Exothermic Weld Kits
 - p. Elastomeric Weld Caps
 - q. Exothermic Weld Coating
 - r. MicroMax GPS Interrupter, Relay and Heat sink
 - s. At-Grade Concrete Test Box
 - t. Micarta Test Board
 - u. Flange Isolation Kits
 - v. Wax Tape Coating System
 - w. Standard Potential Galvanic Anode
2. As-Built Drawings: The Contractor shall maintain as-built drawings showing the exact locations of the deepwell anode bed, rectifier, test stations, insulators, and wire trenching runs. Location changes shall be clearly indicated in red on a blue-line copy of the design drawings. These drawings shall be submitted to the Engineer before the work is considered complete. Provide subfoot GPS coordinates for all test stations and impressed current equipment.
 3. Rectifier Owner's Manual: The rectifier Owner's Manual shall be submitted to the Engineer:
 4. Rectifier Test Results: The following shall be submitted to the Engineer:
 - a. Rectifier test results.
 - b. Testing Laboratory safety approval. The rectifier shall have a UL Approval Label or ETL Approval Label.
 - c. Driller's logs for deep anode and grounding installations.
- B. Certifications: The Contractor shall submit a notarized affidavit of compliance that all Work, materials and equipment required according to this Section were properly constructed and manufactured in full conformance with these Contract Documents. The Contractor shall submit the manufacturers' Certificates of Compliance.
- C. Operations and Maintenance Information: The Contractor shall submit operation and maintenance related information, rectifier field test reports, parts list with part replacement numbers, and troubleshooting procedures.
- D. Test and Inspection Reports: The Contractor shall submit field test and inspection reports, along with wiring diagrams of the installed system. Testing reports shall include at a minimum: native or baseline pipe-to-soil potentials; electrical isolation from casings, and insulating flange kits; electrical continuity for all metallic pipe sections containing non-welded joints or inline specials not intentionally electrically

isolated; cathodic protection system activation; any deficiencies; and conclusions and recommendations. The final testing report issued for this project shall include all previous testing results, approved material submittals, and as-built drawings. The reports shall be submitted in an electronic PDF format. In addition all tabulated calculated data shall be submitted as a Microsoft Excel file format.

- E. Impressed Current Anode Current Measurements: The Contractor shall tabulate and submit all anode current outputs before and after the addition of the calcined coke backfill. These data shall be part of the final testing report.
- F. Qualifications: The Contractor shall submit documentation of the qualifications of the Corrosion Engineer.
- G. Permits: The Contractor shall submit copies of all permits including state and local well drilling permits and traffic control permits for deepwell anode sites.
- H. Drilling Log: Drilling records shall be submitted to the Engineer within ten days of the completion of the anode well. Records shall include:
 - 1. Drillers Log.
 - 2. Identification of water-bearing strata.
 - 3. Resistance-to-well of all anodes before and after calcined coke is added to the well.
 - 4. Anode Well Drilling Permit and Final Well Completion Permit.

1.6 PACKAGING AND SHIPPING

- A. The Contractor shall coil wires, secure and package anodes as required to prevent damage during shipment.

1.7 NOTIFICATION FOR TESTING AND INSPECTION

- A. The Contractor shall notify the Engineer at least seven days in advance of the deepwell drilling and the installation of rectifier, wiring, and test stations. Well loading and completion shall be done in the presence of the Engineer. The Engineer or the Owner's Representative shall witness all corrosion control installations at their discretion.

1.8 CORROSION ENGINEER QUALIFICATIONS SUBMITTAL

- A. Services of Corrosion Engineer: Obtain the services of a Corrosion Engineer to inspect, activate, adjust, and evaluate the effectiveness of the cathodic protection system. The Corrosion Engineer is herein defined as a registered Professional Engineer with certification or licensing that includes education and experience in cathodic protection

of buried or submerged metal structures, or a person accredited or certified by NACE International at the level of Corrosion Specialist or Cathodic Protection Specialist (i.e. NACE International CP Level 4). Such a person shall have not less than five years' experience inspecting pipeline cathodic protection systems. The Corrosion Engineer shall directly oversee the Cathodic Protection Technician, review all specification section 13111 related inspections and field measurements, and certify the accuracy and completeness of all cathodic protection submittals and reports.

- B. Services of Cathodic Protection Technician: Obtain the services of a Cathodic Protection Technician to inspect, activate, adjust, and evaluate the effectiveness of the cathodic protection system. The Cathodic Protection Technician is herein defined as a person accredited or certified by NACE International as a Cathodic Protection Level 2 Technician. Such a person shall have not less than five years' experience.

PART 2 - PRODUCTS

2.1 IMPRESSED CURRENT ANODES

- A. Mixed Metal Oxide - Tubular
 - 1. Description: Dimensionally stable, tubular titanium anodes with a mixed metal oxide coating and having the dimensions listed below:
 - a. Length: 60 inches, minimum.
 - b. Outside Diameter: 1 inch, minimum.
 - c. Weight: 1.6 pounds, minimum.
 - 2. Manufacturer: De Nora Lida "One" Anodes, or approved equal

2.2 ANODE CENTRALIZERS

- A. Centering devices shall consist of three metal that can be securely attached to the anodes and vent pipe to center them in the drilled hole. Centralizers shall not block the hole or impair installation of the anode, anode wire, or calcined coke. Centralizers shall be LIDA Ventralizers or approved equal.

2.3 CALCINED COKE

- A. Calcined Petroleum Coke: Lubricated, low resistance, calcined petroleum coke shall be provided, suitable for pumping and with the following composition:
 - 1. Bulk Density: 64 to 74 pounds per cubic foot.
 - 2. Fixed Carbon: 98% to 99.8%.
 - 3. Maximum Particle Size: 2.5mm

- B. Manufacturers, or approved equal:
 - 1. Loresco RS-3, or approved equal.

2.4 DEEP ANODE CONSTRUCTION MATERIALS

- A. Vent Pipe: 2-1/2 inch, Schedule 40 PVC pipe with screwed and glued joints, with 0.006-inch longitudinal slots, 1.5-inches long, cut completely through both sides of the pipe at 4-inch centers in the active anode column area. Use Loresco All-Vent, or approved equal.
- B. Ground Bed Sealing Material: Cement grout, bentonite-gelatinous mud, puddled clay, or concrete, in accordance with the applicable state and local regulations.
- C. Deep Anode Well Head Vault: The wellhead vault shall be H-20 traffic rated. Use Christy traffic rated box B1017-61GH screw down, steel cover, or approved equal. Mark wellhead vault as shown on the drawings.
- D. Surface Vent Pipe: ASTM A 53 standard steel pipe, hot dipped galvanized after fabrication, 1-inch diameter with 180-degree fabricated gooseneck and SST bug screen at the top.

2.5 ORNAMENTAL ENCLOSURE

- A. The enclosure for the rectifier, AC disconnect switch, shunt panel, and AC outlet shall be freestanding, pad-mounted, steel enclosure. The enclosure shall be aluminum and finish shall be powder coated White inside and out. The color shall be as approved by the Engineer. Use Myers MSX NEMA 3R or approved equal. The enclosure shall accommodate all components and have the following dimensions:
 - Height: 57.5 inches
 - Width: 30 inches
 - Depth: 17 inches
- B. The enclosure shall have stainless steel door handles with provisions for padlocks, louvered vents with filters, and stainless steel hardware.
- C. AC Outlet: Provide a conveniently located 120V/20A receptacle with its own 20 amp breaker and circuit coming from the meter pedestal.
- D. Shunt Panel Board: Anode shunts and test/reference cell leads shall terminate on a panel board made of micarta, 1/4-inch thick. Double-nutted brass bolts, nuts, and lock washers shall be installed on the panel boards as indicated and per UL 486.
- E. Shunts: Anode shunts shall be 0.01 ohm.
- F. Mounting Pad: The ornamental enclosure shall be mounted on a 24-inch deep reinforced concrete pad. The concrete pad shall extend above grade by 3-inches. The

total thickness of the concrete pad is 27-inches. The concrete pad dimensions shall be at least 4-inches larger on all sides of the ornamental enclosure.

2.6 AC METER PEDESTAL

- A. The AC meter pedestal (per SDG&E Guidelines, latest edition) shall be located at the location shown on the drawings with approval from the Engineer. The meter pedestal shall have a 100A main breaker and a 20 amp, double pole breaker for the rectifier and a 20A, single pole breaker for the 120V/20A outlet within the enclosure. Meter pedestal shall be Myers MEUG16-M100-SD or approved equal.
- B. Concrete mounting pad size for the meter pedestal shall be 24 X 24 X 6 Inches thick with reinforcing steel. The wire conduit shall penetrate the concrete mounting pad.

2.7 RECTIFIER ASSEMBLY

- A. Construction: The rectifier shall be mounted in a freestanding ornamental enclosure and installed on a metal frame which slides out for access and maintenance. The rectifier unit, anode shunt panel, and 120 VAC convenience outlet shall all be mounted inside the ornamental enclosure. The rectifier shall be Universal air-cooled standard line Model ASAI 25-15 or approved equal.
- B. Electrical Characteristics:
 - 1. Rectifier shall have a 120/240 Volt single phase AC input, with filter choke, and have a rated DC output of 25 Volt 15 Amp, satisfying the requirements of NEMA publication MR-20 and NFPA 70. Rectifiers shall be capable of operating continuously at the rated output current at any voltage from zero to 110% without damaging any rectifier components. Full rated DC output voltage shall be adjustable by not less than 30 equal steps from approximately 5% of rated voltage to full rated output. This adjustment may be accomplished with studs and link-bars or tap switches and shall 5 coarse and 6 fine adjustments, at minimum. If tap switches are used, they shall not carry over 50% of the nominal current rating assigned by the manufacturer. The rectifier shall have a faceplate mounted 120 V convenience outlet.
 - 2. Rectifiers shall be designed to operate continuously at rated maximum voltage and current in ambient temperature of 122 degrees F without damage to the rectifier components. Cooling shall be accomplished by natural convection. Fan cooling is not acceptable for unattended equipment.
 - 3. Silicon stacks shall be equipped with silicon diodes rated a minimum of 800 peak inverse volts. Heat sinks shall be sized to keep diode junction and case temperatures from exceeding 212 degrees F under 113 degrees F ambient temperature conditions.
- C. Transformers: Transformers shall be isolation type with a grounded electrostatic shield between the primary and secondary windings. Dielectric strength of all

insulating materials shall not be less than 2,000 V RMS as tested for one minute when applied between windings and the transformer core. Magnet wire insulation and layer insulation shall be rated no less than 311 degrees F. The transformer efficiency shall not be less than 85%. The transformer voltage regulation shall not exceed 3% from full rated load to 1/4 of rated load.

- D. Output Monitoring: Separate voltmeter and ammeter shall be provided for monitoring rectifier output. Minimum meter width shall be 3.5 inches round or rectangular with minimum scale length of 2-7/8 inches. Meter movement shall be jewel and pivot D'Arsonval type. Meter accuracy shall be a minimum of plus or minus 2% of full scale at 80 degrees F and shall be temperature compensated to vary no more than 1% per 10 degrees F temperature variation. Scale faces shall be metal or plastic. Ammeter shunt shall be block type mounted on the front panel for easy access. Current and millivolt ratings shall be clearly stamped on the shunt. Shunt accuracy shall be at least plus or minus one percent. Output meters shall have on/off switches.

- E. Overload Protection: All rectifiers shall have overload protection. Protection from overload on the input shall be accomplished by molded case fully magnetic circuit breakers on the incoming power lines. These circuit breakers shall hold at 100% of load and may trip between 101% and 124% of rated load. They shall trip at 125% of rated load. The trip point shall be unaffected by changes in ambient temperature. Trip handles of individual pole breakers shall be mechanically linked to open all lines when an overload occurs. Units shall be equipped with silicon stacks, overload protection shall be provided by a quick opening fuse in the transformer secondary. The rectifier shall have secondary breakers for AC and DC outputs.

- F. Surge Protection: Voltage surge protection for units equipped with silicon stacks shall be supplied by AC and DC lightning arresters.

- G. Testing: Electrical tests shall be performed at the factory and recorded as listed below:
 - 1. AC Volts Input
 - 2. AC Amperes Input
 - 3. Apparent Watts Input
 - 4. True Watts Input
 - 5. Power Factor
 - 6. DC Volts Output
 - 7. DC Amperes Output
 - 8. DC Watts Output
 - 9. Conversion Efficiency
 - 10. Dielectric Strength
 - 11. Transformer Primary to Ground
 - 12. Transformer Secondary to Ground
 - 13. Transformer Primary to Secondary
 - 14. Stack AC to Ground

- 15. Stack DC to Ground
 - 16. Ripple Voltage at Full Output
- H. Results of the tests shall be furnished to the Engineer with the Owner's Manual.
- I. Rectifier Warranty: The manufacturer shall warrant the rectifier for one year against failures due to defective parts and/or faulty workmanship.
- J. Rectifier Spare Parts: The rectifier unit shall be equipped with three spare fuses for each of the fuses used in the unit. The spare fuses shall be secured inside the rectifier cabinet and shipped with the unit.

2.8 CONDUIT, FITTINGS, AND ACCESSORIES

- A. All below-grade wire shall be run in schedule 40 PVC conduit. All above-grade conduit shall be rigid galvanized steel.
- B. Fittings: Fittings for use with rigid steel conduit shall be galvanized cast ferrous metal, with gasket covers. Rigid metallic conduit fittings shall be galvanized conforming to UL 514. Fittings for use with either rigid nonmetallic conduit shall be PVC and shall have solvent weld-type conduit connections.
- C. Elbows: All buried conduit elbows shall be long radius ell type.

2.9 WIRES

- A. General: Conform to applicable requirements of NEMA WC 70. All wires shall be single conductor, unless otherwise specified. All wires shall be single conductor, stranded copper wire with 600-volt HMWPE insulation, unless otherwise specified.
- B. Joint Bond: Two No. 2 AWG HMWPE.
- C. Cathode (Pipe) Lead: Two No. 2 AWG HMWPE.
- D. Positive Jumper Wire: No. 6 AWG THWN with red insulation.
- E. Negative Jumper Wire: No. 6 THWN with blue insulation.
- F. Test Station Pipeline Leads: No. 8 AWG HMWPE.
- G. Galvanic Anode Leads: No. 12 AWG THWN (WHITE).
- H. Casing Test Leads: No. 10 AWG HMWPE.

I. R Drop Test Leads: No. 8 AWG HMWPE

J. Impressed Current Anode Wires:

1. Construction: The wire attached to the anodes shall be AWG stranded, single conductor, copper, insulated for 600 V. Wire size shall be No. 8 AWG Halar/HMWPE, Kynar/HMWPE, PVDF/HMWPE, or approved equal. The inner insulation shall be 0.020-inch minimum, radiation-cross linked polyvinylidene fluoride. The outer insulation shall be 0.065-inch minimum HMWPE per ASTM D1248. Connection of wire to the anode shall have a pulling strength, which shall exceed the tensile strength of the wire. Any damage to the wire insulation or anode shall require complete replacement of the wire and anode. Anode wires shall be of one continuous length without splices from the anode connection to the Anode Shunt Panel. Anode wires with the attached anode shall be shipped to the job site with the wire wound on a reel. The minimum core diameter of the reel shall be 7½-inches. The anode wire insulation shall be free of nicks, abrasions and scratches throughout the entire length of the wire. Precaution shall be taken during fabrication, transportation and installation of the anodes to see that the wire is not kinked or sharply bent. Bends sharper than 2½-inches in radius are not permissible.
2. Resistance Testing: The anode manufacturer shall conduct and report resistance tests performed on each anode wire connection to assure the finished connection does not exceed 0.004 ohms. These resistance tests shall be performed with a Kelvin bridge circuit or equal. Anode wire connections that have a resistance value of greater than 0.004 ohms shall not be acceptable. An accurate record of tests shall be submitted to the Engineer. The records shall include the following information, as a minimum:
 - a. Anode numbering system to identify anode under test
 - b. Anode wire length
 - c. Resistance value as indicated by test
 - d. Test equipment
 - e. Description of test method
3. The anode manufacturer shall mark the reel holding the anode wire for shipment to the job site with the same anode numbering system used on the test records and the total length of attached anode wire.

2.10 SHUNTS

- A. Impressed Current Anodes: Holloway Type RS, 0.01 ohm, 6 ampere capacity.
- B. Galvanic Anode Test Stations: The shunt resistance shall be such that a 2-Amp. Shunts shall be flat manganin ribbon style as manufactured by Cott or approved equal.

2.11 CONCRETE

- A. Reinforcing steel: ASTM A615, Grade 60 deformed bars and welded wire fabric.
- B. Welded Wire Fabric: ASTM A497.
- C. Formwork: Plywood, earth cuts may be used.
- D. Concrete with minimum 3,000 psi compressive strength at 28 days.

2.12 ANCILLARY MATERIALS

- A. Electrical Tape: Linerless rubber high-voltage splicing tape and vinyl electrical tape suitable for moist and wet environments. Use Scotch 130C and Scotch 88 as manufactured by 3M Products.
- B. Wire Connectors: One-piece, tin-plated crimp-on lug connector as manufactured by Burndy Co., Thomas and Betts.
- C. Insulating Resin: At Contractor's option, bitumastic coating (Koppers 50 or equal) may be used if allowed to dry completely before covering.

2.13 MARKING TAPE

- A. Inert polyethylene, impervious to known alkalis, acids, chemical reagents, and solvents likely to be encountered in soil.
- B. Thickness: Minimum 4-mils.
- C. Width: 6-inches.
- D. Identifying Lettering: Minimum 1-inch high, permanent black lettering imprinted continuously over entire length.
- E. Color: Red with black lettering as follows: "CAUTION CATHODIC PROTECTION CABLES BURIED BELOW."

2.14 EXOTHERMIC WELDS

- A. General: Wire sleeves, welders, and weld cartridges according to the weld manufacturer's recommendations for each wire size and pipe or fitting size and material. Welding materials and equipment shall be the product of a single manufacturer. Interchanging materials of different manufacturers will not be accepted.

- B. Weld Caps: Exothermic welds shall be sealed with a pre-fabricated plastic cap filled with formable mastic compound on a base of elastomeric tape. Use Royston Handy Cap or approved equivalent. Primer for weld caps shall be Royston Roybond Primer 747 or approved equivalent.
- C. Weld Coating: All bare metal shall be coated. Exothermic welds and weld caps shall be coated with a cold-applied, fast-drying mastic consisting of bituminous resin and solvents per MIL-C-18480B. Use Royston R28, Royston R28 Zero VOC, Royston A51 Plus, Royston A51 Low VOC, Tapecoat TC Mastic or approved equal.

2.15 GPS INTERRUPTER

- A. The rectifier shall be equipped with an American Innovations Micromax GPS 300 Interrupter with Crydom solid state relay and heat sink, or approved equal.

2.16 AT-GRADE TEST STATIONS

- A. At-Grade (Flush) Mounted:
- B. Test Box: Concrete box of dimensions as shown on the Drawings. Use precast concrete San Diego Pre-cast Model 1BSD\K with cast iron lid. The cast iron lid shall be 9-1/2 inch diameter with the letters "City of San Diego Corrosion Test Station".
- C. Each CP Test Box shall include a 5 inch x 5 inch cross-laminated phenolic terminal board with a minimum thickness of 1/4-inch. The phenolic material shall be NEMA type CE or LE. The terminal board shall contain individual electrical lugs for each wire entering the test station or junction box.

2.17 PIPE FLANGE ISOLATION KIT

- A. For purposes of this specification, the terms "Pipe Flange Isolation Kit", "Insulating Flange", "Insulating Joint", and "Dielectric Flange" are used synonymously.
- B. The Contractor shall over drill flange holes where insulating kits are to be used per AWWA C207 to accommodate insulating sleeves.
- C. The Pipe flange isolation kit materials shall be designated by the manufacturer as suitable for service at the operating temperatures and pressures specified on the Plans.
- D. Flange isolation kits shall consist of a one piece, full-face, insulating gasket, an insulating sleeve for each bolt, insulating washers, and steel washers. For nominal pipe diameters up to and including 36-inches, provide one insulating washer and one

steel washer on each side of the flange for each flange bolt. For nominal pipe diameters greater than 36-inches, the insulating washers shall be installed sandwiched between a pair of matching steel washers on each side of the flange for each flange bolt.

- E. Insulating Gasket: Insulating gasket retainers shall be full face, Type E, NEMA G-10 glass reinforced epoxy retainers with an Ethylene Propylene Diene Monomer (EPDM) rubber rectangular cross section O-ring seal. Minimum total gasket thickness shall not be less than 1/8-inch. The gasket shall have the same outside diameter as the pipe flange. For steel pipe the gasket's inside diameter shall be equal to the inside diameter of the pipe's steel cylinder. At valve to pipe connections where the inside diameters are not equal, the gasket's inside diameter shall be equal to the smaller of the two inside diameters. Dielectric strength shall be not less than 550-volts per mil, and compressive strength shall be not less than 50,000-psi. The manufacturer's name and date of manufacture shall be marked on both sides of the gasket with minimum two-inch tall block letters using a durable marking ink or paint. The gasket shall be installed within 12 months of its date of manufacture. Do not store insulated flange gaskets at jobsites under direct sunlight or at temperatures exceeding 110 degrees Fahrenheit. Use PSI Linebacker insulating gasket, or approved equal.
- F. Insulating Sleeves: Provide full length, one piece, NEMA G-10 glass reinforced epoxy insulating flange bolt sleeves. Dielectric strength shall be not less than 400-volts per mil. The length of the insulating sleeves shall provide an air gap between the end of the insulating sleeve and inside surface of the stud bolt nut with a tolerance of 1/32-inch minimum and 1/8-inch maximum. Insulating sleeve length must be adjusted for the actual thickness of the washers and insulating washer thickness.
- G. Insulating Washers: Insulating washers shall be NEMA G-10 glass reinforced epoxy with a minimum thickness of 1/8-inch. Dielectric strength shall not be less than 550-volts per mil, and compressive strength shall not be less than 50,000-psi. The insulating washer's inside diameter shall be sized to fit over the insulating sleeve's outside diameter.
- H. Steel Washers: Provide hardened steel washers that conform to ASTM F436 for insulated flanges greater than 36 inches in nominal diameter. Double steel washers (4 steel washers per flange bolt) are required for insulated flanges greater than 36 inches in nominal diameter. The inside and outside diameter of the steel washers shall match those of the insulating washers. The steel washers must be able to freely rotate around the insulating sleeve. Attention must be paid to the fit between the steel washers and the insulating sleeve in order to avoid the washers twisting and cracking the sleeves when the flange bolts are torqued.
- I. Provide four extra insulating sleeves and eight extra insulating washers for each insulating flange upon successful inspection of the insulating flange by the Engineer.

2.18 WAX TAPE COATING FOR BURIED SURFACES AND BURIED ISOLATION FLANGES

- A. All buried pipe sections of pipe, specials, and fitting surfaces that are not tape wrapped or epoxy coated shall be wrapped with a petrolatum wax tape coating per AWWA C217 with plastic outer wrap. No bare metallic surfaces shall be buried, backfilled, or in contact with the soil.
- B. Apply a wax tape coating system which conforms to AWWA C217 and consists of three parts: surface primer, wax-tape, and outer covering.
- C. The primer shall be a blend of petrolatum, plasticizer, and corrosion inhibitors having a paste like consistency. It shall have a pour point of 100-degrees F to 110-degrees F and a flash point of 350-degrees. Use Trenton Wax-Tape Primer, or approved equal.
- D. The wax-tape shall consist of a synthetic-fiber felt, saturated with a blend of high melt microcrystalline wax, solvents, and corrosion inhibitors, forming a tape coating that is easily formable over irregular surfaces and which firms up after application. The tape shall have a saturant pour point between 125-degrees F and 130-degrees F and a dielectric strength equal to a minimum of 100-volts per mil. Tape thickness shall be 70-mils to 90-mils in 6-inch wide rolls. Use Trenton No. 1 wax-tape, or equal.
- E. The outer covering shall consist of two layers of a plastic wrapper. The plastic wrapper material shall consist of three 10-mil thick clear polyvinylidene chloride, high cling membranes wound together as a single sheet. Use Trenton Poly-Ply, or equal.

2.19 STANDARD POTENTIAL MAGNESIUM ANODES

- A. CAPACITY. Standard potential magnesium anodes shall have a theoretical energy content of 1000 ampere-hours per pound and have a minimum useful output of 500 ampere-hours per pound.
- B. CHEMICAL COMPOSITION (STANDARD POTENTIAL MAGNESIUM) ASTM B843
 - aluminum 5.30 to 6.70 percent
 - manganese 0.15 to 0.70 percent
 - zinc 2.50 to 3.50 percent
 - copper 0.02 percent max
 - nickel 0.002 percent max
 - iron 0.003 percent max
 - silicon 0.10 percent max
 - others, total 0.30 percent max
 - magnesium remainder
- C. OPEN CIRCUIT POTENTIAL. The open circuit potential of all anodes, buried in the soil, shall be between 1.45 and 1.55 volts dc versus a copper-copper sulfate reference electrode.

- D. INGOT SIZE AND WEIGHT. Anodes shall be 17-pound pre-packaged, standard potential ingots with a trapezoidal cross section. Ingot length shall be 25.25 inches long. The total packaged weight shall be 45 lbs.
- E. ANODE CONSTRUCTION. Anodes shall be cast magnesium with a galvanized steel core rod recessed on one end to provide access to the rod for connection of the lead wire. Silver braze the lead wire to the rod and make the connection mechanically secure. Insulate the connection to a 600 volt rating by filling the recess with epoxy and covering any exposed bare steel core or wire with heat shrinkable tubing. The insulating tubing shall extend over the lead wire insulation by not less than 1/2 inch. The anode lead wire shall be stranded copper and shall be connected directly to the anode steel core as described above. There shall be NO wire splices between the anode steel core and the tag end at the test station.
- F. ANODE PRE-PACKAGED BACKFILL MATERIAL. The anodes shall be completely encased and centered within a permeable cloth bag in a special low resistivity backfill mix with the following composition:

Gypsum	75%
Powdered bentonite	20%
Anhydrous sodium sulfate	5%
- G. Backfill grains shall be such that 100 percent is capable of passing through a screen of 100 mesh. Backfill shall be firmly packed around the anode such that the ingot is approximately in the center of the backfill. The resistivity of the backfill shall be no greater than 50 ohm-cm when tested wet in a soil box. Total prepackaged weight shall be approximately 45 pounds.

PART 3 - EXECUTION

3.1 GENERAL

- A. Work not specifically described herein shall conform to NACE SP0169, NACE SP0572, NACE SP0286, the Standard Specifications for Public Works Construction 2012 (Greenbook) and City Supplement White Book and Standard Drawings.

3.2 DEEPWELL ANODES

- A. No specific alternate deepwell anode sites are provided however, if bedrock is reached prior to the design depth then alternate well locations may be designated by the Engineer. The following anode bed design changes shall apply depending upon the actual well depth achieved:

1. Bedrock depth greater than 131-feet to full design depth of 230-feet: Install all 8 anodes with active anode column length as shown in the detail drawings.
 2. Bedrock depth greater than 123-feet but less than 131-feet: Install as shown in drawings except with 7 anodes.
 3. Bedrock depth greater than 115-feet but less than 123-feet: Install as shown in the drawings except with 6 anodes.
 4. Bedrock depth greater than 107-feet but less than 115-feet: Install as shown in the drawings except with 5 anodes.
 5. Bedrock depth greater than 99-feet but less than 107-feet: Install as shown in the drawings except with 4 anodes. Install a second anode bed within the City's Easement, but no closer than 25-feet of the first well location with direction from the Engineer. Install the four remaining anodes in the second well and at the same depths. The active anode column lengths must be the same for both anode wells.
 6. If bedrock is encountered at a depth less than 99-feet than an alternate anode well site will be selected by the Engineer.
- B. The Contractor shall notify the Engineer immediately if rock is encountered. Drilling shall continue to the design well depth until specifically instructed otherwise by the Engineer.
- C. The Contractor's base price quotation shall be based upon the assumption that the deepwells will be drilled to their full design depth and shall include 2-hours of rock-drilling.
- D. Inspection and Notification: The drilling, preparation, loading of anodes and calcined coke shall be done in the presence of the Engineer and the Corrosion Engineer. The Contractor shall give the Engineer a 7-day notice before drilling and installation.
- E. Location and Responsibility: The final location of the anode well shall be determined in the field by the Contractor and shall be approved by the Engineer. The well location can be adjusted to accommodate positioning of the drill rig such that there will be minimum impact on traffic. The Contractor is responsible to locate and avoid all utilities prior to drilling. The Contractor shall retain his responsibility regardless of the approval of the drilling site by the Engineer.
- F. Drilling: Anode well drilling shall be done in the presence of the Engineer and the Corrosion Engineer and shall be done by means of a rotary drill rig using circulating water base drill mud or by rotary air drilling. It is the Contractor's responsibility to provide the proper drilling method with the knowledge that rock or cobble may be encountered. Holes shall be nominal 10-inches in diameter and shall be drilled essentially straight and plum. Drilling mud shall be circulated from a portable sump or tank provided by the Contractor.

- G. The Contractor shall dispose of drilling mud and cuttings at a suitable disposal site at no additional cost to the Owner. Drilling fluid may be considered hazardous and must be disposed of in accordance with Local, State, Federal, and US EPA approved methods.
- H. When the hole has been drilled to specified depth, fresh water shall be circulated from the bottom of the hole to clear the hole of drilling mud and cuttings. The hole shall be flushed until fluid is thinned as much as possible without danger of cave-in. The degree to which the hole is flushed shall be determined by the Engineer. The hole shall be maintained full to the top with fresh water throughout the entire loading operations.
- I. Rock Drilling:
 - 1. The Contractor shall notify the Engineer immediately if a rock strata is encountered. Drilling shall be stopped until authorized by the Engineer to proceed.
 - 2. Rock drilling shall be defined as a condition where the rate of drilling drops below 6-feet per hour (1-foot every 10-minutes). It is assumed that the drillers' equipment is suitable for the intended purpose and can achieve a 50 to 90-feet per hour rate in good drilling conditions.
 - 3. Rock drilling shall commence only upon the approval and direction of the Engineer and shall cease upon direction of the Engineer.
- J. Loading:
 - 1. Preparation of the impressed current system anode hole and loading of anodes and other equipment in the hole shall be done in the presence of the Engineer. A minimum of 7-day notice before anode loading shall be given by the Contractor to the Engineer. Loading of the anode hole shall be begun early enough in the day to insure completion of all loading, including backfilling, during regular working hours. Loading shall not be started later than 1:00 p.m. unless prior approval has been obtained by the Contractor from the Engineer.
 - 2. Anode assemblies, with centralizers attached, shall be lowered into the hole supported by the attached lead wires. Anode vent pipes shall be lowered to the depth indicated. The Engineer shall visually inspect the insulation on the anode lead wire for abrasion or other damage to the insulation and wire as the anode is lowered into place. The Engineer will reject all anodes with damaged insulation or wire, and they shall not be installed. Splices and/or any form of wire repair shall not be allowed on the anode lead wire from the point of connection at the anode to the top of the deep well anode bed hole. In the event that an anode must be retrieved after it has been lowered into the hole, the entire length of the anode lead wire shall be inspected by the Engineer for abrasion or other forms of damage to the insulation and wire. Anodes with damaged wires shall be rejected by the Engineer and shall not be reinstalled.

3. When an anode has been placed at specified depth, it shall be securely fixed in that position by tying the anode lead wire to a rack, sawhorse, etc., placed over or adjacent to the anode hole. That portion of the device to which the anode wire is tied shall be smooth and round and shall have a diameter of not less than 3-inches so as to prevent kinking or sharply bending the wire.
4. All anodes shall be loaded before calcined coke backfill is loaded. No anodes shall be covered until the Engineer has inspected the placement of the anodes and given permission to backfill.
5. The vent pipe shall be installed along with the first anode placed in the hole by attaching it to one of the centralizer straps with a stainless steel clamp. The vent pipe shall not be attached to the anode proper. The Engineer will approve the attachment before the vent pipe is lowered into the hole. Joints shall be made up as the anode assembly, with the vent pipe attached, is lowered into the hole.

K. Calcined Coke:

1. Calcined coke shall be placed in the hole by pumping. The pumping shall be at a steady rate and shall be slow enough to insure that the calcined coke does not bridge or block in the hole. The hole shall be kept completely full of water during placement of backfill. The top of the hole shall be kept free of floating coke breeze particles.
2. Settling of the backfill and coverage of the anodes shall be determined by the Engineer by observing the Contractor's measurement of anode current output through a 12V DC power source circuit. During backfill placement, continuous monitoring of the current output of the lowermost uncovered anode shall be made. Coverage of the anode will be indicated by a rapid increase in current output, normally by at least 50%. As soon as coverage of a lower anode is indicated, the circuit shall be attached to the next higher anode in the hole and so on until coverage of all anodes has been verified. The Contractor shall record the anode current output of each backfilled anode on the same form used for recording the initial current output of the anode. After coverage of the top anode has been verified, sufficient coke shall be placed in the hole to insure backfilling a minimum of 10-feet above the uppermost anode.

L. Well Sealing:

1. The hole above the coke column shall be No. 4 river run pea gravel (no sharp edges) up to the bottom of the grout seal. At the Contractor's option, the pea gravel intermediate backfill may be substituted with grout from the top of the calcined coke column to the wellhead. Following placement of the pea gravel, the hole shall be sealed per California State Bulletin Number 74.
2. Well sealing operations above the calcined coke column shall begin no sooner than 30 minutes, nor later than 24 hours, after the anode current measurements, indicating that the uppermost anode had been covered with

calcined coke. Once backfilling has begun, it shall continue until the hole is filled with grout. The annular seal shall extend to vault.

- M. Wellhead Box: Concrete box shall be set at the top of the anode hole as indicated. From the top of the anode hole, the anode leads shall be run to the rectifier enclosure. The anode vent pipe shall be terminated at the ornamental enclosure as indicated in the detail drawings. Individual anode leads shall terminate in the anode junction box and be permanently marked with cable identifiers to their respective position in the anode hole as indicated. The wellhead vault shall have an approved H-20 traffic rated box.

3.3 RECTIFIER INSTALLATION

- A. Installation: The rectifier, anode shunt panel, and 120-volt convenience outlet with GFCI shall be installed inside the ornamental enclosure and wired as shown in the drawings. The installation shall conform to NEC 70 and be in compliance with all applicable electrical codes and standards. Upon completion of the installation, the Contractor shall leave the rectifier in the off position until activated by the Corrosion Engineer.
- B. Concrete Pad: The ornamental enclosure shall be mounted on a concrete pad as shown in the detail drawings. The hold-down bolt pattern and locations shall be obtained by the Contractor from the manufacturer. The top of the concrete pad shall be 3-inches minimum above the final grade.
- D. Meter Pedestal: The meter pedestal shall be mounted adjacent to the transformer. AC wires shall be trenched between ornamental enclosure and the meter pedestal. The AC wiring shall be installed in a conduit. Additionally, AC wiring shall be trenched from the meter pedestal to the SDG&E transformer or handhold. Connections to transformers or handholds shall be made by SDG&E crews. It is the Contractor's responsibility to contact SDG&E for AC wiring connections.
- E. Ground Rod: Install a ground rod and ground wiring at the rectifier in accordance with NFPA NEC 70.
- F. Notification: Provide the Engineer with 7 working days notice before the completion of the rectifier, ground bed, and AC power service installation to allow scheduling of the required energizing and testing.

3.4 WIRE CABLES AND CONDUCTORS

- A. Rectifier to Pipeline: Wire shall be single-conductor; No. 2 AWG stranded copper with 600-V High Molecular Weight Polyethylene (HMWPE) insulation 7/64-inch thick.

- B. Installation: Arrange conductors neatly in rectifier and ornamental enclosure. Cut to proper length, remove surplus wire, and attach terminal or connect to appropriate junction box or rectifier terminal.
- C. Below ground Seals: Seal below ground conduit to prevent intrusion of foreign material after wire is in place.
- D. Buried Wires, Cables and Leads: Buried rectifier, pipeline, test station, or anode leads and conduits shall be at a 36-inch deep, minimum, below finished grade. Wires shall be free of splices. The Contractor shall compact wire trenches and re-pave in accordance with the Greenbook/Whitebook Standards.
- E. AC Wiring Backfill: AC wire shall be installed and backfilled per SDG&E Service Guide (latest edition).
- F. Warning Tape: Bury warning tape in the trench 12-inches below grade and above underground conductors and conduits. Align parallel to and within 2-inches of the centerline of the conduit run.

3.5 CONDUITS

- A. Securing Conduits: Secure conduits entering test station boxes or ornamental enclosures with double locknuts, one on the outside and one on the inside.
- B. Insulation Fittings: Install insulated bushings and insulated throat connectors on the ends of rigid metallic conduit.
- C. Watertight Fittings: Use watertight couplings and connections. Install and equip boxes and fittings to prevent water from entering the conduit or box. Seal unused openings.

3.6 WIRE-TO-PIPE CONNECTIONS

- A. Exothermic Weld:
 1. Use exothermic weld method for electrical connection of copper wire to steel surfaces. Observe proper safety precautions, welding procedures, weld charge selection, and surface preparation recommended by the welder manufacturer. Assure that the pipe or fitting wall thickness is of sufficient thickness that the exothermic weld process will not damage the integrity of the pipe or fitting wall or protective lining. One exothermic weld shall be used for one wire only.
 2. Preparation of Metal: Remove all coating, dirt, grime, and grease from the metal surface by wire brushing and/or use of suitable safe solvents. Clean the surface to a bright, shiny surface free of all pits and flaws. The surface must be completely dry.
 3. Testing: After the weld connection has cooled, remove slag, visually inspect, and physically test wire connection by striking the weld with a 2-lb hammer while

pulling firmly on the wire. All unsound welds shall be completely removed, the surface prepared again, and re-welded. All weld slag shall be removed from the weld before applying coating and weld cap.

- B. Protective Coating: The Contractor shall furnish all materials, clean surfaces and repair any damage to protective coatings and linings damaged as a result of the welding. A coating shall be applied to all exothermic weld locations. The coating for dielectrically coated steel shall be as described in Section 2.14 above. All surfaces must be clean and dry and free of oil, dirt, loose particles and all other foreign materials before application of the coating. The coating must cure per the manufacturer's recommendations prior to backfill. The mortar rockshield shall be repaired per the manufacturer's recommendations.

3.7 MAGNESIUM ANODES

- A. INSPECTION. All lead wires shall be inspected to ensure that the lead wire is securely connected to the anode core and that no damage has occurred to the lead wire. Lead wire failures shall require replacement of the complete anode and lead wire.
- B. PRE-PACKAGED ANODE INSPECTION. Each anode shall be inspected to ensure that the backfill material completely surrounds the anode and that the cloth bag containing the anode and backfill material is intact. If the prepackaged anodes are supplied in a waterproof container or covering, that container or covering shall be removed before installation. The CONTRACTOR shall notify the ENGINEER at least seven (7) days in advance of installing the anodes.
- C. LOCATION. Anodes are to be installed in augured holes as shown in the drawings. Anode positions can be adjusted slightly to avoid interference with existing structures. Alternate anode positions must be approved by the ENGINEER.
- D. HANDLING. Care shall be taken to ensure that the anode is never lifted, supported, transported, or handled by the lead wire. All anodes shall be lowered into the hole using a sling or a rope.
- E. ANODE HOLE SIZE AND DEPTH. Anodes shall be placed vertically at the bottom of a 12 feet deep augured hole, 12 inches in diameter (minimum).
- F. SOAKING REQUIREMENTS, PRE-PACKAGED ANODES. Once the prepackaged anodes are in the hole, water shall be poured into the hole so that the anodes are completely covered with water. Allow the anodes to soak for a minimum of 30 minutes before any soil backfill is added.
- G. SOIL BACKFILL. After the pre-packaged anodes are soaked, the hole is backfilled with stone-free, native soil. No voids shall exist around the anode bags and the anode lead wire shall not be damaged. The backfill shall be tamped and compacted in 18 inch lifts above the anode taking care not to damage the anode lead wire.

3.8 AT-GRADE TEST STATIONS

- A. LOCATION. At-grade corrosion monitoring test boxes shall be located behind the curb or sidewalk and NOT in traffic lanes or gutters. All test box locations shall be approved by the ENGINEER.
- B. TEST BOX BOTTOM. Test boxes shall be set in native soil.
- C. TEST LEAD ATTACHMENT. Test leads shall be attached to the pipe using the exothermic weld process. An 18-inch length of slack wire shall be coiled at each weld and inside each test box.
- D. CONCRETE PAD. A 24-inch square by 4-inch thick reinforced concrete pad is required around each at-grade test station. Test boxes and concrete pad shall be flush with the top of the median curb.

3.9 EXTERNAL COATING

- A. All insulating couplings shall be covered with a 3-layer wax tape coating system per AWWA C217 with plastic outer wrap. Additionally, all in-line valves, flanges couplings, and adapters that are not coated with a bonded dielectric coating shall be wax tape coated per AWWA C217 with plastic outer wrap.
- B. Primer: Surfaces must be cleaned of all dirt, grime, and dust by using a wire brush and clean cloth. The surface shall be dry. Apply the primer by hand or brush. A thin coating of primer shall be applied to all surfaces and worked into all crevices. The primer shall be applied generously around bolts, nuts, and threads, and shall fully cover all exposed areas. The primer should overlap the pipe coating by a minimum of 3-inches.
- C. Petrolatum Saturated Tape: The wax tape can be applied immediately after the primer. Short lengths of tape shall be cut and carefully molded around each individual bolt, nut, and stud end. For long bolts (such as in couplings), short lengths of tape shall be cut and circumferentially wrapped around each individual bolt. After the bolts are covered, the tape shall be circumferentially wrapped around the flange with sufficient tension to provide continuous adhesion without stretching the tape. The tape shall be formed, by hand, into all voids and spaces. There shall be no voids or gaps under the tape. The tape shall be applied with a 1-inch minimum overlap. Minimum thickness of 70 mils over flat surfaces. Minimum thickness of 140 mils over edges.
- D. Outer Covering: A plastic outer cover shall be applied over the petrolatum-saturated tape. The plastic shall be a minimum of 50-gauge (10-mils) and shall have two layers applied.

3.10 REBAR GROUND CABLE AT CONCRETE STRUCTURES

- A. Minimum size #2 AWG, bare copper stranded grounding cable. The quantity of cable required should be sufficient to run two ground cables from a flush-to-grade concrete ground box down to two separate exothermic connections made to rebar inside each concrete encasement or major reinforced concrete structure. Locate the rebar ground text boxes adjacent to cathodic protection test boxes.

3.11 INSTALLATION OF FLANGE ISOLATION MATERIALS

- A. Provide a minimum of five days advance notice to the Engineer before assembling insulated pipe flanges to allow for coordination and observance of its installation. The Engineer shall inspect the condition of the gasket's O-ring immediately before the gasket is installed to ensure it is free of cracks, dry rot, cuts, or other defects.
- B. Install pipe flange insulating materials at the locations shown on the Plans. Install pipe flange insulating materials in accordance with the manufacturer's recommendations and NACE recommended practice SP0286, "Electrical Isolation of Cathodically Protected Pipelines." Particular attention shall be paid to properly aligning the flanges prior to inserting the insulating sleeves around flange bolts.
- C. Prevent moisture, soil, or other foreign matter from contacting any portion of the insulated flange prior to or during installation. If moisture, soil, or other foreign matter contacts any portion of the insulated flange, disassemble it, clean with a suitable solvent and dry prior to reassembling. Follow the manufacturer's recommendations regarding the torque pattern of the bolts and the amount of torque to be used when installing the flange insulating kit. Do not use conductive grease on the flange bolts or any other flange components. Note: the following products have been tested for electrical conductivity and approved for use: Huskey 2000 Lubricating Paste & Anti-Seize compound, Triflow aerosol lubricant with Teflon additive, or approved equal.
- D. All insulating flange kits that will be buried must be tested and approved by the City's Corrosion Engineer before burial. Failure to have written approval by the City before burial may require the contractor to re-excavate the insulating flange assembly for proper testing at the contractor's expense.

PART 4 – TESTING AND INSPECTION

4.1 General

- A. The CP system shall be activated and adjusted by the Contractor's Corrosion Engineer. The Contractor is required to contact the City's Corrosion Section (phone number 619-

527-5439) at least 5 days in advance of all corrosion control/cathodic protection facility installations. The Engineer, City's Corrosion Engineer, or the Owner's Representative shall witness all testing and installations at their discretion. All test data shall be submitted to the City's Corrosion Engineer within seven (7) days of the completion of the testing. All testing shall be conducted under the supervision of a qualified Corrosion Engineer who is retained by the Contractor. All deficiencies found to be due to faulty materials or workmanship shall be repaired or replaced by the Contractor and at his/her expense.

4.2 TEST LEADS AND BOND WIRES

- A. Responsibility: The Contractor shall be responsible for testing and inspecting all test leads, bond wires, and exothermic welds.
- B. Test Method: All completed wire connections shall be tested by striking the weld with a 2-lb. Hammer while pulling firmly on the wire. Failed welds shall be completely removed, the surface re-prepared, and re-welded. Welds shall be spot tested by the Engineer. After backfilling, all test leads shall be tested using a standard ohmmeter.
- C. Acceptance: The resistance between each pair of test leads shall not exceed 120% of the total wire resistance as determined from published wire data.

4.3 ANODE LEAD WIRE INSPECTION

- A. Responsibility: The City's Corrosion Engineer will inspect each anode lead wire at the anode site. The Contractor shall assist the City's Corrosion Engineer and is responsible for inspecting/testing the anode lead wire insulation prior to storing and shipping.
- B. Test Method: Inspection shall be visual and by feel, or by using a Holiday Tester. The Engineer shall inspect and run his or her hand along the full length of each anode lead wire cable just prior to installation in the well.
- C. Acceptance: All anode lead wires shall be free of cuts, nicks, and abrasions. Cables with damage shall be rejected.

4.4 TEST LEAD TRENCHING AND BACKFILL

- A. Responsibility: The Engineer, at his or her discretion, shall inspect wire trenches and backfill material and methods.
- B. Test Method: The depth, trench bottom padding, and backfill material shall be visually inspected before backfilling.

- C. Acceptance: Conformance with specifications.

4.5 RECTIFIER TESTING

- A. Responsibility: The rectifier shall be inspected and tested by the Corrosion Engineer and witnessed by the City's Corrosion Engineer. Testing shall be done in the presence of the Engineer.
- B. Test Method: Rectifier tests shall verify that AC power is available at the rectifier, that all switches and circuit breakers work, and that DC voltage is applied to the anodes. The current output of all anodes shall be measured and recorded with the rectifier taps set at 25%, 50%, and 75% capacity.
- C. Acceptance: Compliance with this specification and full operation of the rectifier in accordance with the owner's manual description and manufacturer's claims. Anode current outputs shall be in proportion to the anode bed resistance as determined by the anode well logs.

4.6 FLANGE ISOLATION KIT TESTING

- A. Each buried insulating flange shall be tested for its electrical isolation effectiveness by and acceptable to the City's Corrosion Engineer prior to burial. The insulating flange shall be tested for electrical isolation before the wax tape coating is applied. Testing shall be performed and deemed as acceptable as described in the above grade testing procedure.
- B. Each above grade or insulating flange within a vault shall be tested for its electrical isolation effectiveness. This testing shall be performed by the Contractor's Cathodic Protection Technician and witnessed by the City's Corrosion Engineer. The Contractor shall provide written notice of this testing to the Engineer a minimum of two days in advance. If the insulated pipe flange will be buried, At the Engineer's option, the City of San Diego may repeat this testing during or immediately after the installation of the insulating flange. Replace or repair any insulated pipe flange that is determined to not meet the minimum electrical isolation requirements in this specification. The effectiveness of insulating flanges shall be determined using the following test techniques in the order shown until one of the criteria is achieved or as otherwise directed by the Engineer.
- C. Electrical Potential Difference Test: Electrically bond the pipe on the vault or unburied side of the insulating flange to an electrical ground with a maximum resistance to remote soil of 5-Ohms. If the pipe on both sides of the insulating flange is mechanically connected to a minimum 50-feet of buried pipe, then the pipe does not need to be bonded to an electrical ground for this test. Measure the CP Potential of the pipe on both sides of the insulating flange using a copper/copper sulfate reference

electrode. If the difference in CP Potentials is greater than or equal to 500-millivolts, the insulating flange is providing adequate electrical isolation. This test must be performed with all cathodic protection systems and anodes disconnected from the pipeline. If this criterion is not met, perform the Nilsson 400 Meter Direct Resistance Test to verify the effectiveness of the insulating flange.

- D. Direct Resistance Test: Measure the electrical resistance across the insulated flange using a 97-Hertz square wave null balancing ohmmeter such as the Model 400 Nilsson Soil Resistance Meter and the four-wire resistance technique. A standard handheld digital multi-test meter's ohmmeter circuit (e.g. Fluke 97 or Beckman HD110) is not suitable for properly making these resistance measurements. Perform this test by connecting the meter's P1 and C1 terminals to one side of the insulating flange, using two wires, and then connecting the meter's P2 and C2 terminals to the other side of the insulating flange, using two additional wires. Use vise grips or temporary exothermic welds to make the wire connections to the flange or pipe. The criterion for a pipe filled with water is a minimum measurement of 5-Ohms. The criterion for a dry or a partially filled pipe is a minimum measurement of 100-Ohms. If none of the applicable criteria are met, perform the Inductive Ammeter Direct Resistance Test to verify the effectiveness of the insulating flange.
- E. Inductive Ammeter Direct Resistance Test: Connect two separate wires via two separate connections to the pipe on both sides of the insulating flange. Use vise grips or temporary exothermic welds to make the wire connections. Use two pairs of test wires, one for current flow, one for voltage measurement. Using the first set of test wires, apply a minimum 12-volt DC electrical current across the insulating flange. Using the second set of test wires, measure the voltage across the insulating flange developed by the DC current flow. Use an inductive ammeter hoop (e.g. Swain hoop) clamped around the pipe immediately adjacent to the insulating flange to measure the change in DC current flow in the pipe, through the insulated flange. Calculate the electrical resistance across the insulating flange in Ohms by dividing the change in DC Volts by the change in DC Amps (i.e. Ohm's Law). The criterion for a pipe filled with water is a minimum measurement of 5-Ohms. The criterion for a dry pipe is a minimum measurement of 100-Ohms. If either of the applicable criteria is not met, perform the NACE Insulating Flange Leakage Test, per NACE SP0286, to verify the effectiveness of the insulating flange.
- F. NACE Insulating Flange Leakage Test: This test procedure shall conform to the "Leakage Test" described in the NACE Standard SP0286, Section 8, "Field Testing and Maintenance", Figure 12. The test current used shall be between 3 and 5 DC Amps. The criterion for a pipe filled with water is a maximum "electrical leakage value" of 10-percent of the test current. The criterion for a dry pipe is a maximum "electrical leakage value" of 5-percent of the test current.
- G. Individual Flange Bolt Testing: For all insulated flanges to be buried and for all other insulating flanges that do not meet any of the other criteria, measure the electrical resistance of each flange bolt to both sides of the insulated flange using a Nilsson Model 400 Soil Resistance Meter and four-wire resistance technique. The measured

resistance value for each flange through-bolt shall be a minimum of 1,000-Ohms, as measured from each bolt to both flanges. This criterion applies to the flange through-bolts and does not apply to valve cap bolts which are threaded on one side. Remove, inspect, and replace all dielectric flange bolt sleeves and washers that do not meet the minimum resistance criterion.

- H. If an insulated flange with threaded cap bolts passes the resistance tests for all the “through-bolts” yet fails the other previous tests, remove all the threaded cap bolts, inspect and replace all imperfect dielectric flange bolt sleeve and washer materials and retest.
- I. In order to make an accurate resistance measurement that passes any of these criteria it may be necessary to disable the pipe inside a vault, flow control facility, or pump station on one side of the insulated flange (or temporarily remove any electrically grounded appurtenances) so that the pipe is not grounded on one side of the insulated flange. This temporary change may eliminate an electrical path which interferes with making an accurate resistance measurement.

4.7 ELECTRICAL CONTINUITY TESTING OF PIPE WITH BONDED JOINTS

- A. Conduct electrical continuity testing to demonstrate that all buried pipe joints (except insulated flanges) are either welded joints or have been electrically bonded across with bond cables. This testing shall be performed by the Contractor’s Cathodic Protection Technician and witnessed by the Engineer. The Contractor shall demonstrate to the Engineer’s satisfaction that full electrical continuity has been achieved and shall make all required bond cable connections in the event that electrical continuity of the pipeline is not achieved.
- B. Perform electrical continuity tests between test stations. Circulate a 12-volt electrical direct current (DC) through the pipeline. Use two pairs of test wires, one for current flow, one for voltage measurement. Measure the voltage difference developed by the DC current flow. Calculate the electrical resistance of the pipeline section in Ohms using Ohm's Law.
- C. The resistance acceptance criterion for each pipeline section tested is less than 120 percent of the calculated resistance value. The resistance value shall be calculated using the steel cross section area of the pipe, its length, and consideration for the joint bond cables at each bonded joint.
- D. If other electrical continuity test methods are proposed, the Contractor shall prepare a written test procedure specifying the alternate method and equipment that will be used. A standard handheld digital multi-test meter's ohmmeter circuit (e.g. Fluke 87) is not suitable for properly making these electrical resistance measurements. Submit in writing the alternate proposed test method to the City’s Corrosion Engineer for approval a minimum of 30 days before the pipe laying begins.

4.8 CP TEST STATION WIRE INTEGRITY TESTING

- A. Testing of Completed Welds: Exothermically welded wire-to-pipeline connections shall be inspected by the Engineer prior to backfilling the pipeline. At the Engineer's direction, tests to verify the soundness of the welds shall be conducted by the Contractor. Tests for this purpose shall consist of striking the weld nugget with a 2-pound hammer while steadily pulling on the wire. Note that the wire near the weld shall not be unnecessarily cold worked during installation or testing. Remove and re-weld any welds that break loose or show signs of separating, as determined by the Engineer.
- B. Wire Identification: The Engineer shall be given two day's advance notice to verify that buried pipe lead wires and anode lead wires are properly identified prior to backfilling the wires.
- C. CP Test Wire Resistance Tests: After the pipeline is backfilled and the CP test wires are trenched to the CP Test Box or CP Monitoring Station, each pair of CP test wires shall be tested for integrity. The CP Technician shall measure the electrical resistance of one CP test wire to the pipeline and back on the second CP test wire. If more than twice the theoretical resistance of the total wire length installed is measured, the Contractor shall re-excavate the pipeline and replace or re-weld the CP test wires to the pipeline. Use the following copper wire unit resistance values to calculate the theoretical resistance of each pair of CP test wires.
 - 1. No. 2 AWG wire 0.162 Ohms / 1000 feet
 - 2. No. 4 AWG wire 0.258 Ohms / 1000 feet
 - 3. No. 6 AWG wire 0.411 Ohms / 1000 feet
 - 4. No. 8 AWG wire 0.653 Ohms / 1000 feet
 - 5. No. 10 AWG wire 1.038 Ohms / 1000 feet
 - 6. No. 12 AWG wire 1.650 Ohms / 1000 feet
 - 7. No. 14 AWG wire 2.624 Ohms / 1000 feet

4.9 ELECTRICAL ISOLATION TESTING BETWEEN PIPE AND STEEL REINFORCEMENT

- A. Prior to placing concrete, all pipe/wall/slab penetrations must be inspected by the City's Corrosion Engineer. Testing shall be performed and deemed acceptable as described herein. A seven-day notice is required before placing concrete.
- B. Conduct visual and electrical testing at all steel pipe penetrations through reinforced concrete structures before and after the concrete is placed. This testing is required to demonstrate that all buried steel pipe is not in contact with any metallic objects embedded in the concrete wall or concrete slab including all of the following:
 - rebar
 - rebar tie wire
 - snap ties

shebolts
tie rods
taper ties
dowels

- C. Perform this testing no more than 1 day before each concrete placement and no more than 1 day after each concrete placement. Correct all direct contacts detected between sections of pipe to be buried and concrete reinforcing components by trimming or repositioning the reinforcement components. If pipe to reinforcement contacts are detected after concrete is in place, use chipping hammers and other concrete demolition tools to remove as much concrete as is necessary to eliminate all metallic points of contact with the steel pipe. A representative from the City of San Diego, Water System Operations, Corrosion Section shall be notified a minimum of 7 days before the first pipe-vault penetration concrete is placed in order to witness and ensure proper electrical isolation. The failure for a new buried steel pipeline to pass this electrical isolation test may require concrete and reinforcing steel to be incrementally demolished by the contractor at no cost to the City of San Diego until the new pipeline passes the electrical isolation test.
- D. Perform all electrical resistance measurements for this test using a 97-Hertz square wave null balancing ohmmeter such as the Nilsson Model 400 Soil Resistance Meter or the MC Miller Model 400A and the four-wire resistance technique to compensate for the test wire and connection resistances. A standard handheld digital multi-test meter's ohmmeter circuit (e.g. Fluke 87) is not suitable for properly making these resistance measurements. Perform this test by connecting the meter's P1 and C1 terminals to the pipe, using two different wires and two different connections, and then connecting the meter's P2 and C2 terminals to the rebar, using two additional wires and connections. Use vise grips or temporary exothermic welds to make the wire connections to the pipe and rebar.
- E. Rebar Ground Cable Connections at Pipe Encasements and Vault Penetrations: Select two exposed pieces of rebar separated by at least 2 feet that are wire tied to a minimum of 6 other perpendicular pieces of rebar for use as electrical ground reference test points. Using temporary connections such as vice grips or other compression clamps measure the electrical resistance between the two different pieces of rebar to ensure that the rebar test points are electrically continuous with the bulk of the rebar in the concrete structure. If either piece of rebar is not securely wire tied to all the other rebar in the encasement or vault, then the electrical resistance measurement will yield erroneous or misleading data. A maximum resistance of 0.10 Ohm between the two rebar test points is required before continuing with the electrical isolation test. Connect two unspliced lengths of minimum size #6 AWG bare copper stranded grounding cable to two different pieces of rebar. Each ground cable connection to the rebar shall be made with a separate exothermic weld or a separate mechanical compression ground clamp.
- F. Direct Resistance Isolation Test: Testing shall first be performed using the Direct Resistance Test. Attach one pair of the resistance test leads to the pipe and one pair of

resistance test leads to the rebar then measure the pipe to rebar resistance. If the resistance is 10 Ohms or more, the pipe is sufficiently electrically isolated from the rebar. If the test reading is less than 10 Ohms, proceed with the Steel Polarization Isolation Test described below.

G. Steel Polarization Isolation Test:

Step 1: Measure the baseline CP potentials of the buried pipeline and of the rebar using a stationary location for a copper sulfate reference electrode. Place the reference electrode in soil at an offset distance from the pipeline equal to approximately the length or width (whichever is greater) of the concrete structure under construction. If the difference between the readings of the pipe and rebar is 500 millivolts DC or more, that indicates sufficient electrical isolation. This test must be done with all nearby sources of cathodic protection electrical current turned off or disconnected, and with all welding equipment turned off. If the difference is less than 500 millivolts DC, record the baseline CP Potentials and proceed to the next step.

Step 2: Set up a temporary DC power source such as a truck battery, a minimum 300 Watt, 2 to 4 Ohm, power rheostat, a calibrated electrical shunt, and two minimum #6 AWG test cables. Set up the DC power source with the positive cable connected to the rebar and the negative cable connected to the pipe. Initially adjust the rheostat for the largest resistance/smallest current and measure the current flow. Adjust the electrical power to a minimum current of 1 DC Amp, maximum of 10 DC Amps. Allow the DC current to flow for a minimum of 5 minutes then shut off the test current.

Step 3: Re-measure CP Potentials of the pipe and rebar using the same reference electrode in the same location with the test current off. These are called polarized CP potentials.

Step 4: Compare the polarized CP Potentials with the previously measured baseline CP Potentials. If the pipe is electrically isolated from the rebar, the test current will polarize the buried pipeline's steel cathodically (i.e. a more negative CP Potential) and shift the rebar anodically (i.e. a more positive CP Potential). If the difference between the polarized potentials of the pipeline and rebar is less than 300 millivolts DC there are one or more metallic contacts between the buried pipeline and the rebar. If the difference is 300 millivolts DC or greater the steel pipeline is sufficiently electrically isolated from the rebar.

H. In no case shall an electrical resistance measurement made with a hand held volt-ohm multimeter be accepted as an accurate isolation test procedure. In the event of a question regarding the electrical isolation of the pipeline, the Engineer shall make the final determination.

I. Electrical isolation tests shall be conducted for each pipeline encasement, each pipe to vault penetration, and any other reinforced concrete structure that a pipeline passes through. The electrical isolation tests must be performed by the City's Corrosion Engineer one day before concrete is placed, and the day after concrete is placed. The

Engineer will witness the electrical isolation test conducted before the concrete is placed.

- J. After the pipeline passes the rebar isolation test, direct bury the two bare copper ground cables connected to the rebar to a flush-to-grade concrete ground box near the pipe-vault penetration. Provide a cover for the test box marked "GROUND". Provide a minimum of two (2) feet of extra ground cable inside the rebar ground test box. If there is a nearby cathodic protection test box, the rebar ground wires can be run into that box. If the rebar test wires are not long enough to reach the permanent test box, splice additional wire to them using two brass split bolts for each splice. No coating is required for the connections.

4.10 PIPELINE CONTINUITY THROUGH IN-LINE APPURTENANCES AND PIPE JOINTS

- A. The CONTRACTOR'S CORROSION ENGINEER shall measure the linear resistance of sections of pipe in which in-line valves, non-welded pipe joints, or other flanged mechanical joints have been installed. All testing shall be done by the CORROSION ENGINEER in the presence of the ENGINEER.
- B. TEST METHOD. Resistance shall be measured by the linear resistance method. A direct current shall be impressed from one end of the test section to the other (test station to test station). A voltage drop is measured for a given current level. The measured resistance (R) is calculated using the equation $R=dV/I$, where dV is the voltage drop between the test span and I is the corresponding current. The resistance shall be measured at least three (3) times for accuracy.
- C. ALTERNATIVE METHODS. If other electrical continuity test methods are proposed, the CONTRACTOR shall prepare a written test procedure specifying the alternate method and equipment that will be used. A standard handheld digital multi-test meter's ohmmeter circuit (e.g. Fluke 87) is not suitable for properly making these electrical resistance measurements. Submit in writing the alternate proposed test method to the ENGINEER for approval a minimum of 30 days before the pipe laying begins. The alternative method must be acceptable to the City's Corrosion Engineer with written approval before being conducted by the Contractor.
- D. ACCEPTANCE. Acceptance is a comparison between the measured resistance (from the field test data) and the theoretical resistance. The theoretical resistance must consider the pipe (length and wall thickness) and the resistance of the bond wires. The measured resistance shall not exceed the theoretical resistance by more than 120% to determine electrical continuity. The CONTRACTOR'S CORROSION ENGINEER shall submit, within seven (7) days of the completion of the testing, and in a report format, to the ENGINEER, all calculations of the theoretical resistance and measured pipe resistance for each section tested.

4.11 CATHODIC PROTECTION PERFORMANCE

- A. Responsibility: The cathodic protection system shall be activated and tested by the Corrosion Engineer in the presence of the City's Corrosion Engineer. Upon completion of the performance testing, the Contractor shall adjust the level of protection in accordance with NACE SP0169 to a structure-to-electrolyte potential of -850 mV or more negative as measured with respect to a saturated copper/copper sulfate (CSE) reference electrode. This potential may be either a direct measurement of the polarized potential or a current-applied potential. Interpretation of a current-applied measurement requires consideration of the significance of voltage drops in the earth and metallic paths.
- B. Test Method: Achievement of cathodic protection shall be accomplished by a pipe-to-soil potential survey at each test station of the pipeline. In the event that the full length of the pipeline has not been installed, then the extent of the survey shall be determined by the Engineer. Potential survey data shall include native pipe-to-soil potentials and instant-off pipe-to-soil potentials.
- C. Acceptance Criterion for Steel Pipe With Dielectric Coating: The operation of the cathodic protection system for steel pipelines with a dielectric coating shall be tested to ensure that all portions of the buried pipeline are provided a full level of corrosion protection. The standard used to evaluate the CP potential measurements shall be as follows: 0.85-VOLT CP Instant Off POTENTIAL - A negative voltage of at least 0.85-volt as measured between the buried pipeline and a copper sulfate reference electrode contacting the soil immediately over or adjacent to the pipeline in accordance with NACE SP0169. Determination of this voltage is to be made with the cathodic protection current momentarily interrupted. Voltage drops must be considered for valid interpretation of this voltage measurement.

4.12 COMPLIANCE WITH SPECIFICATIONS

- A. Deficiencies: Any deficiencies or omission in materials or workmanship shall be rectified by the Contractor and at his expense. Deficiencies shall include, but not limited to: anode failures, rectifier malfunctions, electrical discontinuities, lack of electrical isolation, broken or missing test leads or test boxes, improper or unclean trench backfill, and other deficiencies associated with the workmanship, installation, and non-functioning equipment.

PART 5 – MEASUREMENT AND PAYMENT

5.1 CATHODIC PROTECTION, BID ITEM NO. 64

- A. No measurement shall be made for this item.
- B. CATHODIC PROTECTION will be paid at the Contract lump sum amount for CATHODIC PROTECTION, which amount will include full compensation for furnishing all labor, materials, equipment, tools, testing and inspection, incidentals and for doing the work

including preparation and implementation of the plan, as shown on the drawings and as specified in these specifications and no additional compensation will be allowed.

- C. Payment shall be made upon completion and acceptance of cathodic protection system.

END OF SECTION

SECTION 13300

INSTRUMENTATION AND CONTROL

PART 1 -- GENERAL

1.2 WORK OF THIS SECTION

- A. The CONTRACTOR shall provide all Instrumentation and Control systems (I&C) complete and operable, in accordance with the Contract Documents. The requirements of this Section apply to all components of the I&C unless indicated otherwise.
- B. The Contractor shall provide PLC Programming for the project. Programming of the Central HMI system will be done by the City under a separate contract.
- C. Responsibilities
 - 1. The CONTRACTOR, through the use of a qualified Instrumentation Subcontractor or vendor and qualified electrical and mechanical installers, shall be responsible to the OWNER for the implementation of the I&C and the integration of the I&C with other required instrumentation and control devices.
 - 2. Due to the complexities associated with the interfacing of numerous control system devices, the Instrumentation Subcontractor or vendor shall be responsible to the CONTRACTOR for the integration of the I&C with existing devices and devices provided under other Sections and provide a completely-integrated control system free of signal incompatibilities.
 - 3. As a minimum, the Instrumentation Subcontractor or vendor shall perform the following work:
 - a. Implementation of the I&C:
 - (1) Prepare complete and accurate shop drawings
 - (2) Design, develop, and electronically verify complete and accurate control panel design and functionality according to specifications.
 - (3) Conduct operations and maintenance training for owners personnel on maintenance calibration and repair of all instrumentation provided under this contract.

- (4) Procure hardware and provide a complete and accurate bill of materials.
 - (5) Fabricate panels
 - (6) Perform factory tests on panels
 - (7) Perform bench calibration and verify calibration after installation
 - (8) Oversee and guarantee installation for accuracy and totality to design and functionality.
 - (9) Oversee, complete set of documents. Label all wires, verify and guarantee complete loop testing results.
 - (10) Oversee, document, and certify system commissioning
 - (11) Perform comprehensive testing that guarantee accurate and complete system functionality, as well as testing component level accuracy to within manufactures specifications.
 - (12) Provide complete and accurate operations and maintenance manuals to include drawings, BOM, specifications, procedures, calibrations, certificates.
 - (13) Conduct operations and maintenance training for owners personnel on maintenance calibration and repair of all instrumentation provided under this contract.
 - (14) Provide drawings that are complete, correct and of sufficient quantity to have copies located at every maintenance location.
 - (15) Prepare calibration sheets
 - (16) Certify the installation of the I&C
 - (17) Perform complete loop check test on all analog/digital signals. Tests continuity and label all wires on panel.
- b. Integration of the I&C with instrumentation and control devices being provided under other Sections:
- (1) Develop all requisite loop drawings and record loop drawings associated with equipment provided under other Divisions and OWNER-furnished and existing equipment.

- (2) Resolve signal, power, ground and/or functional incompatibilities between I&C and all interfacing devices. Document and guarantee results.
4. Instrumentation Subcontractor or vendor responsibilities in addition to the items identified above shall be at the discretion of the CONTRACTOR. Additional requirements in this Section and Division 13 that are stated to be the CONTRACTOR's responsibility may be performed by the Instrumentation Subcontractor or vendor.

D. Certification of Intent:

1. Fifteen days after Notice of Apparent Low Bidder, the CONTRACTOR shall submit a certification from the selected Instrumentation Subcontractor or vendor. The certification shall be typed on letterhead paper of the Instrumentation Subcontractor or vendor firm. The certification shall be signed by an authorized representative of the Instrumentation Subcontractor or vendor. The certification shall include the following statements:
 - a. (Company name) "hereby certifies intent to assume and execute full responsibility to the CONTRACTOR to perform all tasks defined under Subsection 13300-1.1C.3 in full compliance with the requirements of the Contract Documents."
 - b. "It is certified that the quotation to the CONTRACTOR includes full and complete compliance with the requirements of the Contract Documents without exception."

E. Documentation of Instrumentation Subcontractor Qualifications:

1. List of at least two instrumentation and control system projects successfully completed, of size and scope similar to that described herein, in which the applicant performed system engineering, system fabrication and installation, documentation (including schematic, wiring and panel assembly drawings), field testing, calibration and start-up, operator instruction and maintenance training. Each of the references cited must be accompanied by a written confirmation of the accuracy of the data by a managerial member of the control system operational staff.
2. In addition, list the following information for each project above:
 - a. Name of plant, OWNER, contact name, and telephone number. All phone numbers and contacts shall be verified by the applicant before submission.
 - b. Name of manufacturer(s) for the majority of instrumentation provided.

- c. Type of equipment furnished (i.e., transmitters, recorders, indicators, etc.)
 - d. Manufacturer and model number of DCS, SCADA, or PLC to which the analog system interfaced.
 - e. Date of completion or acceptance.
3. Furnish the name of the individual person who will be responsible for office engineering and management of this project, and the individual who will be responsible for field testing, calibration, start-up, and operator training for this project. Include references of recent projects of these individual persons.
 4. Submit specific documentation which verifies that Instrumentation Subcontractor employs the minimum of individuals who have been formally trained in the application of the:
 - a. Indicated operating systems.
 - b. Indicated software packages.
 - c. Indicated graphical user interface software packages.
 5. Document that the applicant's company has been actively involved in the instrumentation systems business (under the same corporate name).

1.3 RELATED SECTIONS

- A. The Work of the following Sections applies to the Work of this Section. Other Sections, not referenced below, shall also apply to the extent required for proper performance of this Work.
 1. Division 13

1.4 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

- A. The Work of this Section shall comply with the current editions of the following codes as adopted by the City of San Diego Municipal code:
 1. National Electrical Code (NEC)
 2. Uniform Building Code (UBC)
- B. Except as otherwise indicated, the current editions of the following apply to the Work of this Section:

1. ANSI/SA S 5.1 Instrumentation Symbols and Identification
2. ISA-S20 Specification Forms for Process Measurement and Control Instruments

1.5 CONTRACTOR SUBMITTALS

- A. General: Submittals shall be furnished in accordance with the following:
 1. Coordinate the instrumentation Work so that the complete instrumentation and control system will be provided and will be supported by accurate shop drawings and record drawings.
 2. Symbology and Nomenclature: In these Contract Documents, all systems, all meters, all instruments, and all other elements are represented schematically, and are designated by symbology as derived from Instrument Society of America Standard ANSI/ISA S5.1 - Instrumentation Symbols and Identification. The nomenclature and numbers designated herein and on the Drawings shall be employed exclusively throughout shop drawings, and similar materials. No other symbols, designations, or nomenclature unique to the manufacturer's standard methods shall replace those prescribed above, used herein, or on the Drawings.
- B. Instrument Submittal:
 1. Provide a complete index that lists each device by tag number, type and manufacturer. Provide a data sheet for each different type of instrument with the list of tag names. Provide a technical brochure for each data sheet.
- C. Shop Drawings:
 1. General:
 - a. Shop drawings shall include the letter head or title block of the Instrumentation Subcontractor. The title block shall include, as a minimum, the Instrumentation Subcontractor's registered business name and address, project name, drawing name, revision level, and personnel responsible for the content of the drawing.
 - b. Organization of the shop drawing submittals shall be compatible with eventual submittals for later inclusion in the operations and maintenance information. Submittals that are improperly organized or incomplete for a given loop will be rejected.
 - c. Shop drawing information shall be bound in standard size, 3 ring, loose

leaf, vinyl plastic, hard cover binders suitable for bookshelf storage. Binder ring size shall not exceed 3 inches.

- d. Interfaces between instruments, motor starters, control valves, variable speed drives, flow meters, chemical feeders and other equipment related to the I&C shall be included in the shop drawing submittal.
2. Project-Wide Loop Drawing Submittal: Furnish a Project-wide Loop Drawing Submittal (PLDS) that completely defines and documents the contents of each monitoring, alarming, interlock, and control loop associated with equipment provided under the instrumentation sections, equipment provided under sections in other Divisions, existing, and OWNER-furnished equipment that is to be incorporated into the I&C. The PLDS shall be a singular complete bound package electronically drafted in INTERGRAPH MICROSTATION format, submitted within 120 days after contract award, and shall include the following:
- a. A complete index in the front of each bound volume. The loop drawings shall be indexed by systems or process areas. All loops shall be tagged in a manner consistent with the Contract Documents. Loop drawings shall be submitted for every analog and discrete monitoring and control loop.
 - b. Drawings showing definitive diagrams for every instrumentation loop system. These diagrams shall show and identify each component of each loop or system using legend and symbols from ANSI/ISA S5.4 - Instrument Loop Drawings, and as defined by the most recent revision in ISA. Each system or loop diagram shall be drawn on a separate drawing sheet. Loop drawings shall be developed for loops in equipment vendor supplied packages, equipment provided under the instrumentation sections, and OWNER furnished equipment. The loop drawings shall also show all software modules and linkages. In addition to the expanded ISA S5.4 requirements the loop diagrams shall also show the following details:
 - (1) Functional name of each loop.
 - (2) Reference name, drawing, and loop diagram numbers for any signal continuing off the loop diagram sheet.
 - (3) MCC panel, circuit, and breaker numbers for all power feeds to the loops and instrumentation.
 - (4) Designation, and if appropriate, terminal assignments associated with every manhole, pullbox, junction box, conduit, and panel through which the loop circuits pass.

- (5) Vendor panel, instrument panel, conduit, junction boxes, equipment and PLC I/O terminations, termination identification wire numbers and colors, power circuits, and ground identifications.
 - c. Itemized instrument summary. The instrument summary shall list all of the key attributes of each instrument provided under this Contract. As a minimum, attributes shall include:
 - (1) Tag number
 - (2) Manufacturer
 - (3) Model number
 - (4) Service
 - (5) Area location
 - (6) Calibrated range
 - (7) Loop drawing number
 - (8) Associated LCP, PLC, PCM, or RCP
3. Test Procedure Submittals:
 - a. Submit the proposed procedures to be followed during tests of the I&C and its components.
 - b. Preliminary Submittal: Outlines of the specific proposed tests and examples of proposed forms and checklists.
 - c. Detailed Submittal: After approval of the Preliminary Submittal, the CONTRACTOR shall submit the proposed detailed test procedures, forms, and checklists. This submittal shall include a statement of test objectives with the test procedures.
 - d. Certify in writing that for each loop or system checked out, and all discrepancies have been corrected.
4. Calibration Sheets: Each instrument calibration sheet shall provide the following information and a space for sign-off on individual items and on the completed unit:

- a. Project name
 - b. Loop number
 - c. Tag number
 - d. Manufacturer
 - e. Model number
 - f. Serial number
 - g. Calibration range
 - h. Calibration data: Input, output, and error at 10, 50 and 90% of span
 - i. Switch setting, contact action, and deadband for discrete elements
Space for comments
 - j. Space for sign-off by Instrumentation Supplier and date
 - k. Test equipment used and associated serial numbers
5. Training Submittals: The CONTRACTOR shall submit a training plan that includes:
- a. Schedule of training courses including dates, durations, and locations of each class.
 - b. Resumes of the instructors who will actually implement the plan.
- D. Operations and Maintenance Information:
- 1. General: Operations and maintenance information shall be based upon the approved shop drawing submittals as modified for conditions encountered in the field during the Work.
 - 2. Operations and maintenance information submitted shall be organized as follows for each process:
 - a. Section A - Loop Drawings
 - b. Section B - Instrument Summary
 - c. Section C - Instrument Data Sheets

- d. Section D - Sizing Calculations
 - e. Section E - Instrument Installation Details
 - f. Section F - Test Results
3. CONTRACTOR-certified results from Calibration Loop Testing, Precommissioning, and Performance Testing shall be included in Section H of the operations and maintenance information.
- E. Record Drawings:
- 1. Keep current a set of complete loop and schematic diagrams which shall include all field and panel wiring, piping and tubing runs, routing, mounting details, point-to-point diagrams with cable, wire, tube and termination numbers. These drawings shall include all instruments and instrument elements. One set of record drawings electronically formatted in INTERGRAPH MICROSTATION format and 2 hard copies shall be submitted after completion of all Precommissioning tasks but before Performance Testing. All such drawings shall be submitted for review before acceptance of the completed Work.

1.6 FACTORY TESTING

- A. Arrange for the Manufacturers of the equipment and fabricators of panels and cabinets supplied under this Section to allow the ENGINEER to inspect and witness the testing of the equipment at the site of fabrication. Equipment shall include the cabinets, special control systems, flow measuring devices, and other pertinent systems and devices. A minimum of 10 working days notification shall be provided to the ENGINEER before testing. No shipments shall be made without the ENGINEER's approval.

1.7 PERIOD FOR CORRECTION OF DEFECTS

- A. Correct all defects in the I&C upon notification from the OWNER within one year from the date of Substantial Completion. Corrections shall be completed within 5 days after notification.

1.8 SYSTEM DESCRIPTION

- A. All instruments shall return automatically and immediately to accurate measurement upon restoration of power after a power failure, except where specifically noted.

- B. Provide and install two-wire transmitters in local panels or enclosures with receiver/indicator/retransmitter as required.
- C. Provide instrument transmitters which produce isolated 4-20 mAdc analog signals. Follow ISA-S50.1.
- D. For instruments which produce a pulse signal, use dc pulse frequency signals whose repetition rate is directly proportional to the process variable over a 10:1 range. Use 24 Vdc power source.
- E. Provide instruments with conformably coated printed circuit boards to prevent damage by dust, moisture, fungus, and airborne contaminants.
- F. Provide instruments complete with mounting hardware, floor stands, wall brackets, or instrument racks.
- G. Use linear, direct reading indicators unless otherwise specified.

1.9 QUALITY ASSURANCE

- A. Provide instrumentation of rugged construction designed for the site conditions. Provide only new, standard, first-grade materials.
- B. Provide material and equipment in accordance with applicable codes and standards, except as modified by the specifications.
- C. Use single source manufacturer for each instrument type. Use the same manufacturer for different instrument types whenever possible.
- D. Coordinate instrumentation to assure proper interface and system integration. Provide signal processing equipment, to include, but not be limited to, process sensing and measurement, transducers, signal converters, conditioners, transmitters, receivers, and power supplies. Coordinate the various subcontractors, equipment suppliers, and manufacturers.

1.10 WARRANTY

- A. Warranty the instrumentation, materials, workmanship, and installation to be free from defects for a period of one year from the date of final acceptance of the equipment.
- B. Furnish and install replacement parts during the warranty period for any defective component at no additional cost. Replace spare parts consumed during the warranty

period with new equipment at no additional cost, immediately after use, to restore the spare parts inventory.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Code and Regulatory Compliance: All I&C Work shall conform to or exceed the applicable requirements of the National Electrical Code. Conflicts between the requirements of the Contract Documents and any codes or referenced standards or specifications shall be resolved with the more stringent requirement having precedence.
- B. Current Technology: All meters, instruments, and other components shall be the most recent field-proven models marketed by their manufacturers at the time of submittal of the shop drawings unless otherwise required to match existing equipment.
- C. Hardware Commonality: All instruments that use a common measurement principle (for example, d/p cells, pressure transmitters, level transmitters that monitor hydrostatic head) shall be furnished by a single Manufacturer. All panel mounted instruments shall have matching style and general appearance. Instruments performing similar functions shall be of the same type, model, or class, and shall be from a single Manufacturer.
- D. Loop Accuracy: The accuracy of each instrumentation system or loop shall be determined as a probable maximum error; this shall be the square-root of the sum of the squares of certified "accuracies" of the designated components in each system, expressed as a percentage of the actual span or value of the measured variable. Each individual instrument shall have a minimum accuracy of $\pm 0.5\%$ of full scale and a minimum repeatability of $\pm 0.25\%$ of full scale unless otherwise indicated. Instruments that do not conform to or improve upon these criteria are not acceptable.
- E. Instrument and Loop Power: Power requirements and input/output connections for all components shall be verified. Power for transmitted signals shall, in general, originate in and be supplied by the control panel devices. The use of "2-wire" transmitters is preferred, and use of "4-wire" transmitters shall be minimized. Individual loop or redundant power supplies shall be provided as required by the Manufacturer's instrument load characteristics to ensure sufficient power to each loop component. All power supplies shall be mounted within control panels or in the field at the point of application.
- F. Loop Isolators and Convertors: Signal isolators shall be provided as required to ensure adjacent component impedance match where feedback paths may be generated, or to maintain loop integrity during the removal of a loop component. Dropping precision wire-wound resistors shall be installed at all field side

terminations in the control panels to ensure loop integrity. Signal conditioners and converters shall be provided where required to resolve any signal level incompatibilities or provide required functions.

- G. Environmental Suitability: All indoor and outdoor control panels and instrument enclosures shall be suitable for operation in the ambient conditions associated with the locations designated in the Contract Documents. Heating, cooling, and dehumidifying devices shall be provided in order to maintain all instrumentation devices 20% within the minimums and maximums of their rated environmental operating ranges. Provide all power wiring for these devices. Enclosures suitable for the environment shall be furnished. All instrumentation in hazardous areas shall be suitable for use in the particular hazardous or classified location in which it is to be installed.
- H. Signal Levels: Analog measurements and control signals shall be as indicated herein, and unless otherwise indicated, shall vary in direct linear proportion to the measured variable. Electrical signals outside control panels shall be 4 to 20 mA DC except as indicated. Signals within enclosures may be 1 to 5 VDC. All electric signals shall be electrically or optically isolated from other signals. All pneumatic signals shall be 3 to 15 psig with 3 psig equal to 0% and 15 psig equal to 100%.
- I. Control Panel Power Supplies: All power supplies shall have an excess rated capacity of 40%. The failure of a power supply shall be repeated to the SCADA System.

2.2 OPERATING CONDITIONS

- A. The I&C shall be designed and constructed for satisfactory operation and long, low maintenance service under the following conditions:
 - 1. Environment - Coastal
 - 2. Temperature Range - 32 through 104 degrees F
 - 3. Thermal Shock - 1 degree F per minute, maximum
 - 4. Relative Humidity - 20 through 90%, non-condensing

2.3 SPARE PARTS AND SPECIAL TOOLS

- A. Spare Parts: Furnish the spare parts selected by the ENGINEER from the priced list of spare parts in the Instrument Submittal and Control Panel Engineering Submittal in conformance with Section 13370 - Control Panels.

- B. Special Tools: Furnish a priced list of all special tools required to calibrate and maintain all of the instrumentation provided under the Contract Documents. After approval, furnish all listed tools.
- C. Timing of Submittals: All special tools and spare parts shall be submitted before startup starts, and shall be suitably wrapped and identified.

2.6 LIMIT SWITCH

- A. Each intrusion alarm limit switch shall transmit a signal when the monitored door or hatch is not in the closed position.
- B. Each limit switch shall be SPDT, rated for 5 amps. Conduit entrance and terminals shall be epoxy sealed. Limit switch mounting and actuator shall be determined by the Contractor to provide a reliable, positive, and accurate indication of entrance. The switch shall be normally open (actuated closed when the door or hatch is closed). Switch shall be mounted for minimum obstruction of access. Limit switches shall be Type "C" by Square D Class 9007, Allen Bradley 802T, or equal.

Tag No.	Service	Trip Set Point	NEMA Rating
ZS-A	PRS Vault	N/A	4
ZS-B	PRS Vault	N/A	4
ZS-C	RCP Panel	N/A	4

2.7 COPPER TUBING AND CONNECTORS

- A. Copper tubing shall be ASTM B88 or 75, type K or L, Annealed temper (soft copper).
- B. Connectors shall be compression fitted and made of cast copper alloy, brass, or stainless steel. Cast copper alloy fittings shall comply with ASME/ANSI B16.26 specifications.
- C. Thread compounds and lubricants shall be used according to the manufacturer's recommendations. Teflon tape shall not be used.
- D. Copper tubing and connectors shall be Swagelock, Hoke or equal.
- E. Copper tubing supports shall be two hole mounted, made of 304 stainless steel, and have SBR rubber inserts. Use Mc Master-Carr catalog number 8981T25 or equal. Single hole rubber cushioned loop straps are not acceptable.

PART 3 - EXECUTION

3.1 PRODUCT HANDLING

- A. Shipping Precautions: After completion of shop assembly, factory test, and approval, all equipment, cabinets, panels, and consoles shall be packed in protective crates and enclosed in heavy duty polyethylene envelopes or secured sheeting to provide complete protection from damage, dust, and moisture. Dehumidifiers shall be placed inside the polyethylene coverings. The equipment shall then be skid-mounted for final transport. Lifting rings shall be provided for moving without removing protective covering. Boxed weight shall be shown on shipping tags together with instructions for unloading, transporting, storing, and handling at the job site.
- B. Special Instructions: Special instructions for proper field handling, storage, and installation required by the Manufacturer shall be securely attached to each piece of equipment before packaging and shipment.
- C. Tagging: Each component shall be tagged to identify its location, instrument tag number, and function in the system. A permanent stainless steel or other non-corrosive material tag firmly attached and permanently and indelibly marked with the instrument tag number, as given in the tabulation, shall be provided on each piece of equipment in the I&C. Identification shall be prominently displayed on the outside of the package.
- D. Storage: Equipment shall not be stored outdoors. Equipment shall be stored in dry permanent shelters, including in-line equipment, and shall be adequately protected against mechanical injury. If any apparatus has been damaged, such damage shall be repaired by the CONTRACTOR at no additional cost to the OWNER. If any apparatus has been subject to possible injury by water, it shall be thoroughly dried out and put through tests as directed by the ENGINEER. Such tests shall be at no additional cost to the OWNER, and if the equipment fails the tests, it shall be replaced at no additional cost to the OWNER.

3.2 MANUFACTURER'S SERVICES

- A. Manufacturer's services shall be furnished for the following equipment:
 - 1. All flow meters in new or potable water streams that relate to process control, mass balance calculations, and billing of customers.
 - 2. All process analyzers
 - 3. All hazardous gas detection equipment

4. Instruments that require specialized knowledge, such as vibration detectors.
- B. Furnish the following Manufacturer's services for the instrumentation listed above:
1. Perform bench calibration
 2. Oversee installation
 3. Verify installation of installed instrument
 4. Certify installation and reconfirm Manufacturer's accuracy statement
 5. Oversee loop testing, prepare loop validation sheets, and certify loop testing
 6. Oversee precommissioning, prepare precommissioning validation sheets, and certify precommissioning
 7. Train the OWNER's personnel

3.3 INSTALLATION

- A. General:
1. All instrumentation, including instrumentation furnished under other Divisions, shall be installed under Division 13 and the manufacturers' instructions.
 2. Equipment Locations: The monitoring and control system configurations indicated are diagrammatic. The locations of equipment are approximate. The exact locations and routing of wiring and cables shall be governed by structural conditions and physical interferences and by the location of electrical terminations on equipment. All equipment shall be located and installed so that it will be readily accessible for operation and maintenance. Where job conditions require reasonable changes in approximated locations and arrangements, or when the OWNER exercises the right to require changes in location of equipment that do not impact material quantities or cause material rework, make such changes without additional cost to the OWNER.
- B. Conduit, Cables, and Field Wiring
1. All conduit shall be provided under Division 16.
 2. All 4-20 mA signal circuits, process equipment control wiring, signal wiring to field instruments, SCADA and PLC input and output wiring and other field wiring and cables shall be provided under Division 16.

- 3 All SCADA and PLC equipment cables, data highway communication networks shall be provided under Division 13.
 - 4 All terminations and wire identification at I&C equipment furnished under this or any other Division shall be provided under Division 13.
- C. Instrumentation Tie-Downs: All instruments, control panels, and equipment shall be anchored by methods that comply with seismic requirements that apply to the site.
- D. Ancillary Devices: The Contract Documents show all necessary conduit and instruments required to make a complete instrumentation system. The CONTRACTOR shall be responsible for providing any additional or different type connections as required by the instruments and specific installation requirements at no additional cost to the OWNER. All such additions and all such changes, including the proposed method of installation, shall be submitted to the ENGINEER for approval before commencing the Work. Such changes shall not be a basis of claims for extra work or delay.
- E. Installation Criteria and Validation: All field-mounted components and assemblies shall be installed and connected according to the requirements below:
1. Installation personnel have been instructed on installation requirements of the Contract Documents.
 2. Technical assistance is available to installation personnel at least by telephone.
 3. Installation personnel have at least one copy of the approved shop drawings and data.
 4. All power and signal wires shall be terminated with crimped type lugs.
 5. All connectors shall be, as a minimum, water tight.
 6. All wires shall be mounted clearly with an identification tag that is of a permanent and reusable nature.
 7. All wire and cable shall be arranged in a neat manner and securely supported in cable groups and connected from terminal to terminal without splices unless specifically approved by the ENGINEER. All wiring shall be protected from sharp edges and corners.
 8. All mounting stands and bracket materials and workmanship shall comply with requirements of the Contract Documents.

9. Verify the correctness of each installation, including polarity of electric power and signal connections, and making sure all process connections are free of leaks. Certify in writing that for each loop or system checked out, all discrepancies have been corrected.
10. The OWNER will not be responsible for any additional cost of rework attributable to actions of the CONTRACTOR or the Instrumentation Subcontractor.

3.4 LOOP TESTING

- A. General: Individual instrument loop diagrams per ISA Standard S5.4 -Instrument Loop Diagrams, expanded format, shall be submitted to the ENGINEER for review before the loop tests. The CONTRACTOR shall notify the ENGINEER of scheduled tests a minimum of 30 days before the estimated completion date of installation and wiring of the I&C. After the ENGINEER's review of the submitted loop diagrams for correctness and compliance with the specifications, loop testing shall proceed. The loop check shall be witnessed by the ENGINEER.
- B. Instrument and Instrument Component Validation: Each instrument shall be field tested, inspected, and adjusted to its indicated performance requirement in accordance its Manufacturer's specifications and instructions. Any instrument that fails to meet any Contract requirement, or, in the absence of a Contract requirement, any published manufacturer performance specification for functional and operational parameters, shall be repaired or replaced, at the discretion of the ENGINEER at no additional cost to the OWNER.
- C. Loop Validation: Controllers and electronic function modules shall be field tested and exercised to demonstrate correct operation. All control loops shall be checked under simulated operating conditions by impressing input signals at the primary control elements and observing appropriate responses of the respective control and monitoring elements, final control elements, and the graphic displays associated with the SCADA and PLC. Actual signals shall be used wherever available. Following any necessary corrections, the loops shall be retested. Specified accuracy tolerances for each analog network are defined as the root-mean-square-summation of individual component accuracy requirements. Individual component accuracy requirements shall be as indicated by Contract requirements or by published manufacturer accuracy specifications, whenever Contract accuracy requirements are not indicated. Each analog network shall be tested by applying simulated analog or discrete inputs to the first element of an analog network. For networks that incorporate analog elements, simulated sensor inputs corresponding to 20, 40, 60, 80 and 100% of span shall be applied, and the resulting element outputs monitored to verify compliance to calculated root-mean-square-summation accuracy tolerance requirements. Continuously variable analog inputs shall be applied to verify the proper operation and setting of discrete devices. Provisional settings shall be made on controllers and alarms during analog loop tests. All analog loop test data shall be recorded on tests

that include calculated root-mean-square-summation system accuracy tolerance requirements for each output.

D. Loop Validation Sheets: Prepare loop confirmation sheets for each loop covering each active instrumentation and control device except simple hand switches and lights. Loop confirmation sheets shall form the basis for operational tests and documentation. Each loop confirmation sheet shall cite the following information and shall provide spaces for sign-off on individual items and on the complete loop by the Instrumentation Supplier:

1. Project name
2. Loop number
3. Tag number, description, manufacturer and model number for each element
4. Installation bulletin number
5. Specification sheet number
6. Loop description number
7. Adjustment check
8. Space for comments
9. Space for loop sign-off by Instrumentation Supplier and date
10. Space for ENGINEER witness signature and date

E. Loop Certifications: When installation tests have been successfully completed for all individual instruments and all separate analog control networks, a certified copy of all test forms signed by the ENGINEER or the ENGINEER representative as a witness, with test data entered, shall be submitted to the ENGINEER together with a clear and unequivocal statement that all instrumentation has been successfully calibrated, inspected, and tested.

3.5 PRECOMMISSIONING

A. General: Precommissioning shall start after acceptance of all wire test, calibration tests and loop tests, and all inspections have demonstrated that the instrumentation and control system complies with all Contract requirements. Precommissioning shall demonstrate proper operation of all systems with process equipment operating over full operating ranges under conditions as closely resembling actual operating conditions as possible.

- B. Precommissioning Procedures and Documentation: All precommissioning and test activities shall follow detailed test procedures and check lists accepted by the Resident Engineer. All test data shall be acquired using equipment as required and shall be recorded on test forms accepted by the ENGINEER, that include calculated tolerance limits for each step. Completion of all system precommissioning and test activities shall be documented by a certified report, including all test forms with test data entered, delivered to the ENGINEER with a clear and unequivocal statement that all system precommissioning and test requirements have been satisfied.

- C. Operational Validation: Where feasible, system precommissioning activities shall include the use of water to establish service conditions that simulate, to the greatest extent possible, normal final control element operating conditions in terms of applied process loads, operating ranges, and environmental conditions. Final control elements, control panels, and ancillary equipment shall be tested under start-up and steady-state operating conditions to verify that proper and stable control is achieved using local field mounted control circuits. All hardwired and software control circuit interlocks and alarms shall be operational. The control of final control elements and ancillary equipment shall be tested using both manual and automatic (where provided) control circuits. The stable steady-state operation of final control elements running under the control of field mounted automatic analog controllers or software based controllers shall be assured by adjusting the controllers as required to eliminate oscillatory final control element operation. The transient stability of final control elements operating under the control of field mounted, and software based automatic analog controllers shall be verified by applying control signal disturbances, monitoring the amplitude and decay rate of control parameter oscillations (if any) and making necessary controller adjustments as required to eliminate excessive oscillatory amplitudes and decay rates.

- D. Loop Tuning: All electronic control stations incorporating proportional, integral or differential control circuits shall be optimally tuned, experimentally, by applying control signal disturbances and adjusting the gain, reset, or rate settings as required to achieve a proper response. Measured final control element variable position/speed set point settings shall be compared to measured final control element position/speed values at 20, 40, 60, 80 and 100% of span and the results checked against indicated accuracy tolerances.

- E. Precommissioning Validation Sheets: Precommissioning shall be documented on one of two types of test forms as follows:
 - 1. For functions that can be demonstrated on a loop-by-loop basis, the form shall include:
 - a. Project name
 - b. Loop number

- c. Loop description
 - d. Tag number, description, manufacturer and data sheet number for each component.
 - e. Space for sign-off and date by both the Instrumentation Subcontractor and ENGINEER.
2. For functions that cannot be demonstrated on a loop-by-loop basis, the test form shall be a listing of the specific tests to be conducted. With each test description the following information shall be included:
- a. Specification page and paragraph of function demonstrated
 - b. Description of function
 - c. Space for sign-off and date by both the Instrumentation Subcontractor and ENGINEER.
- F. Precommissioning Certification: Submit an instrumentation and control system precommissioning completion report that shall state that all Contract requirements have been met and shall include a listing of all instrumentation and control system maintenance and repair activities conducted during the precommissioning testing. Acceptance of the instrumentation and control system precommissioning testing must be provided in writing by the ENGINEER before the performance testing may begin. Final acceptance of the control system shall be based upon plant completion as stated in the General Conditions.

3.4 ONSITE SUPERVISION

- A. Furnish the services of an on-site service engineer to supervise and coordinate installation, adjustment, testing, and start-up of the I&C. The ENGINEER will be present during the total period required to affect a complete operating system. A qualified team of the Instrumentation Subcontractor personnel shall be on site for 8 hours to check all equipment, perform the tests indicated in this Section, and furnish startup services.

3.5 PERFORMANCE TEST

- A. The entire I&C shall operate for 7 days without failure.
- B. Furnish all necessary support staff as required to operate the system and to satisfy the repair or replacement requirements.

- C. If any component fails during the performance test, it shall be repaired or replaced and the I&C shall be restarted on another 7-day period.

3.6 TRAINING

- A. General: Train the OWNER's personnel on the maintenance, calibration and repair of all instruments provided under this Contract.
- B. Instructions: The training shall be performed by qualified representatives of the equipment manufacturers and shall be specific to each piece of equipment.
- C. Duration: Each training class shall be a minimum of 8 hours in duration and shall cover, as a minimum, operational theory, maintenance, troubleshooting/repair, and calibration of instruments.
- D. Schedule: Training shall be performed during the precommissioning phase of the project. The training sessions shall be scheduled a minimum of 3 weeks in advance of when the courses are to be initiated. The ENGINEER will review the course outline for suitability and provide comments that shall be incorporated.
- E. Agenda: The training shall include operation and maintenance procedures, troubleshooting with necessary test equipment, and changing set points, and calibration for that specific piece of equipment.
- F. Documentation: Within 10 days after the completion of each session the CONTRACTOR shall submit the following:
 - 1. List of all OWNER personnel who attended the session.
 - 2. Evaluation of OWNER personnel via written testing or equivalent evaluation.
 - 3. Copy of the training materials used including all notes, diagrams, and comments.

3.7 ACCEPTANCE

- A. For the purpose of this Section, the following conditions shall be fulfilled before the Work is considered substantially complete:
 - 1. All submittals have been completed and approved.
 - 2. The I&C has been calibrated, loop tested and precommissioned.
 - 3. The OWNER training has been performed.

4. All required spare parts and expendable supplies and test equipment have been delivered to the ENGINEER.
5. The performance test has been successfully completed.
6. All punch-list items have been corrected.
7. All record drawings in both hard copy and electronic format have been submitted.
8. Revisions to the operations and maintenance manuals information that may have resulted from the field tests have been made and reviewed.
9. All debris associated with installation of instrumentation has been removed.
10. All probes, elements, sample lines, transmitters, tubing, and enclosures have been cleaned and are in like-new condition.

PART 4 – MEASUREMENT AND PAYMENT

4.1 536/390 ZONE PRESSURE REGULATING STATION RELOCATION, BID ITEM NO. 62:

- A. No measurement shall be made for this item.
- B. 536/390 ZONE PRESSURE REGULATING STATION RELOCATION will be paid at the Contract lump sum amount for 536/390 ZONE PRESSURE REGULATING STATION RELOCATION, which amount will include full compensation for furnishing all labor, materials, equipment, tools, export of excavated material, soil compaction, incidentals and for doing the work including preparation and implementation of the plan, as shown on the drawings and as specified in these specifications and no additional compensation will be allowed.
- C. Payment shall be made upon completion and acceptance of pressure regulating station.

4.2 SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE, BID ITEM NO. 63:

- A. No measurement shall be made for this item.
- B. SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE will be paid at the Contract lump sum amount for SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE, which amount will include full compensation for furnishing all labor, materials, equipment, tools, and incidentals and for doing the work including preparation and implementation of the plan, as shown on the drawings

and as specified in these specifications and no additional compensation will be allowed.

- C. Payment shall be made upon completion and acceptance of the sump pump installation.

END OF SECTION

1.4 CONTRACTOR SUBMITTALS

- A. Shop drawings shall be submitted in accordance with Section 13300 - Instrumentation and Control.

- B. Control Panel Engineering Submittal: The CONTRACTOR shall submit a control panel engineering submittal (CPES) for each control panel and enclosure provided under Division 13. The CPES shall completely define and document the construction, finish, layout, power circuits, signal and safety grounding circuits, fuses, circuit breakers, signal circuits, internally mounted instrumentation and SCADA system components, face plate mounted instrumentation components, internal panel arrangements, and external panel arrangements. All panel drawings shall be "B" size, and all data sheets and manufacturer specification sheets shall be "A" size. The submittal shall be in conformance with NEMA Standard ICS-1-1.01, shall be submitted as a singular complete bound volume or multi-volume package within 120 calendar days after Notice to Proceed and shall have the following content:
 - 1. A complete index shall appear in the front of each bound volume. Panels shall be indexed by system or process area, and drawings and data associated with a panel shall be grouped together. All panel tagging and nameplate nomenclature shall be consistent with the requirements of the Contract Documents.
 - 2. Scale construction drawings which define and quantify the type and gauge of steel to be used for panel fabrication, the ASTM A36 grade proposed for structural shapes and straps, panel door locks and hinge mechanisms, type of bolts and bolt locations for section joining and anchoring, details and proposed locations on the use of "Unistrut" members, stiffener materials and locations, electrical terminal box and outlet locations, electrical access locations, print pocket locations, writing board locations and lifting lug material and locations.
 - 3. Scale physical arrangement drawings which define and quantify the physical groupings comprising control panel sections, auxiliary panels, subpanels, and racks. Cutout locations with nameplate identifications shall be indicated.
 - 4. Front of panel layouts for all control panels.
 - 5. Schematic/elementary diagrams depicting all control devices and circuits and their functions.
 - 6. Wiring/connection diagrams locating and identifying electrical devices, terminals and interconnecting wiring. These diagrams shall show interconnecting wiring by lines, designate terminal assignments, and show the physical location of all electrical and control devices.
 - 7. Interconnection diagrams locating and identifying all external connections between the control panel/control panel devices and associated equipment. These diagrams shall show interconnecting wiring by lines, designate terminal

assignments, and show the physical location of all panel ingress and egress points.

8. Completed ISA-S20 data sheets for all instrumentation devices associated with each control panel, supplemented with manufacturer specification sheets which verify conformance to the requirements of the Contract Documents.
9. A bill of material which enumerates all devices associated with the control panel.
10. A priced listing of analog spare parts in conformance with Section 13300 - Instrumentation and Control.

1.5 SPARE PARTS AND SPECIAL TOOLS

- A. Control panel spare parts selected by the ENGINEER and special tools shall be provided in accordance with Section 13300 - Instrumentation and Control.
- B. All spare parts and special tools shall be submitted before startup commences, suitably wrapped and identified.

1.6 CERTIFICATION

- A. Each control panel shall bear the UL label. The UL label shall apply to the specific equipment supplied with the enclosure, and the installation and wiring of the equipment within and on the enclosure. If required for UL labeling, provide ground fault interrupters, isolation transformers, fuses, and any other necessary equipment, even though such equipment is not indicated on the Drawings. The fabricator shall be an approved UL listed manufacturer.
- B. The shop that builds the controller must be a UL 508A listed panel shop/fabricator/builder (certified & authorized by UL). This shop will then install a UL sticker of approval on the assembled controller. Otherwise UL or a UL listed third party is needed to inspect, evaluate the work, issue an evaluation report and install the UL approval sticker.

PART 2 -- PRODUCTS

2.1 GENERAL

- A. Environmental Suitability: All outdoor control panels and instrument enclosures shall be suitable for operation in the ambient conditions associated with the locations designated in the Contract Documents. Heating, cooling, and dehumidifying devices shall be provided in order to maintain all instrumentation devices no less than 20% below the maximum rated environmental operating level, and at least 20% above the minimum rated environmental operating level. The CONTRACTOR shall provide all power wiring for these devices. Enclosures suitable for the environment shall be

furnished.

- B. The control panel controls shall be as shown on the drawings. Control conductors shall be provided in accordance with the indicated requirements.
- C. Each source of foreign voltage shall be isolated by providing disconnecting or pull-apart terminal blocks or a disconnect operable from the control panel front. Each control panel shall be provided with identified terminal strips for the connection of all external conductors. Provide sufficient terminal blocks to connect 25% additional conductors for future use. Discrete outputs from the control panel shall be provided by electrically isolated contacts rated for 5 A at 120 VAC. Analog inputs and outputs shall be an isolated 4-20 mA, 2-wire signals with power supply.
- D. Programmable Logic Controllers (PLCs) may be provided in lieu of relays if the programmable logic controllers match the PLCs provided under Section 13374 - Control Panel Instrumentation.
- E. Painting: The interior of the control panel, back-panel, and side-panel(s) shall have a white finish coat.

2.2 CONTROL PANELS

- A. Remote Control Panel RCP:
 - 1. Fabricate panels, install instruments, plumb and wire in the factory.
 - 2. Furnish termination panels, if required. Include terminal blocks; interface hardware, wiring, and cabling necessary for a complete system.
 - 3. Use panel fabrication techniques that allow for removal and maintenance of all equipment after installation.
 - 4. Provide equipment-mounting racks of standard construction and dimensions. Provide front access doors only unless specified otherwise. Provide space for internal wiring and for the connection of external wiring.
 - 5. Do not locate any equipment within bottom two inches of panel.
 - 6. All equipment located within the panel shall be rigidly secured.
 - 7. All outdoor panels shall be provided with breather/drain plugs.
 - 8. Provide a hasp on all enclosure covers (doors) for Owner furnished locks. The Owner will supply padlocks.
 - 9. Enclosures shall be 12 gauge galvanized steel. Provide single door NEMA type 3R with back panels.

10. Provide structural reinforcements within enclosures to insure a plane surface, to limit vibration and to provide rigidity during shipment, installation and operation without distortion or damage to the panel or to any instrument.
11. Grind and sand exterior welds to a smooth finish free of burrs. Make surfaces free of ridges, nuts, bolt heads and similar protrusions.
12. Internally, supply the enclosures with a structural steel framework or bracing for equipment support and enclosure bracing. Where two or more enclosures are shown mounted immediately adjacent to one another, bolt them securely together with their front faces parallel.
13. Provide each enclosure with full gaskets on covers.

B. Electrical Requirements:

1. Conduit, wireways, switches, wire, and electrical fittings shall be provided for all 115 V circuits to instruments and other electrical devices as required for a complete and operable installation.
2. Conduit, wireways, junction boxes, and fittings shall be provided for all signal wire, thermocouple, or resistance thermometer lead wire. Conduit or wireway runs shall include those required between temperature sensors and temperature transmitters and between the thermocouple wireway or junction box to instruments.
3. Each terminal connection shall have a plastic plate with a terminal and instrument tag number. All wiring shall be identified with stamped tubular wire and markers.
4. Panels shall be provided with two switched 500 lumen LED panel lights. Two lights shall be provided for every 4 feet of panel width and shall be mounted inside and in the top of the back-of-panel area.
5. The RCP shall be provided with a 15-A, 120-V, service outlet circuit within the back-of-panel area. The circuit shall be provided with 3-wire, 120-V, 15-A, duplex receptacles one for every 4 feet of panel width (one minimum per panel), spaced evenly along the back-of-panel area.
6. Wall mounted or pedestal mounted panels shall be so sized as to adequately dissipate heat generated by equipment mounted in or on the panel.
7. The RCP shall be provided with thermostatically controlled heaters that maintain inside temperature above 40 degrees F.
8. A door switch shall control two LED panel lights within the RCP.

9. Wiring methods and materials for all panels shall be in accordance with the NEC requirements for General Purpose (no open wiring) unless otherwise indicated.
10. Signal and Control Circuit Wiring:
 - a. Wire type and sizes: Conductor shall be flexible stranded copper machine tool wire UL listed Type MTW, and shall be rated 600 V. Wires for instrument signal circuits and alarm input circuits shall be No. 14 AWG. All other wires, including shielded cables, shall be No. 16 AWG, minimum.
 - b. Wire Marking: Each signal, control, alarm, and indicating circuit conductor connected to a given electrical point shall be designated by a single unique number which shall be shown on all shop drawings. These numbers shall be marked on all conductors at every terminal using white numbered wire markers which shall be plastic-coated cloth, Brady Type B-500 or equal or shall be permanently marked by heat-shrink plastic.
 - c. Flexible conduit is not acceptable except when specifically approved by the ENGINEER in writing.
 - d. Conduit fittings shall be Crouse-Hinds cast fittings or equal.
 - e. Splicing of wires in conduits is discouraged. If permitted, splicing shall be approved by the ENGINEER and splices shall be soldered or pressure type crimped.
 - f. For case grounding, panels shall be provided with a 1/4-inch by 1-inch copper ground bus complete with solderless connector for one No. 4 AWG bare stranded copper cable. The copper cable shall be connected to a system ground loop.
11. DIN Rail Mounted Terminal Blocks:
 - a. Provide factory assembled terminal blocks on a mounting channel and bolt the channel to the inside of the panel. Space terminal block strips no closer than 6 inches center to center.
 - b. Provide screw type 600 V terminals with pressure plate to accept wire size #12 AWG and smaller. Do not use miniature terminal blocks.
 - c. Provide a continuous marking strip with the terminals. Provide a separate terminal for terminating each shield wire.
 - d. Reserve one side of each terminal strip for field incoming conductors. Do not make common connections and jumpers required for internal wiring on the field side of the terminal. Terminate no more than two wires at any

- one terminal.
 - e. Provide a minimum of 25 percent spare terminals.
 - f. The terminal block shall terminate wires without additional preparation such as tinning of wire ends, special connectors, etc.
 - g. The insulation shall have wire entry funnels to facilitate insertion of wires.
 - h. The insulating housing shall prevent stray strands from shorting out adjacent terminal blocks.
 - i. The terminations shall be gastight to prevent corrosion due to corrosive atmosphere.
 - j. Terminal screws shall be captive in the metal body or via the insulation housing.
 - k. Once tightened terminal screws shall be useable with accessories such as center or insertion bridges; test sockets; separating plates, end covers, etc.
 - l. Provide fusible terminal blocks with fuses and blown fuse indicators for each signal loop.
 - m. Manufacturer: Phoenix Contact or equal.
12. DIN Rail Mounted Circuit Breakers:
- a. Circuit breakers shall be 115 VAC, single pole as manufactured by Allen Bradley Series 1492-GH; no equals.
13. Relay Sockets:
- a. Sockets for control relays shall be rated 5 amperes. Terminal screws shall be on the "Pressure Screw" type. Sockets shall be mounted via DIN rail and related hardware. Sockets shall be as manufactured by Allen Bradley Series 700-HN101; or approved equal.
14. Control Relay:
- a. Magnetically held relays shall have one spare contact. Control relays shall have contacts rated for 10-ampere inductive load, 125 volts, with coil voltage, number of poles, and pole arrangement as indicated on the plans. Relays shall be of the indicating type. Provide Allen Bradley Series 700-HA; or approved equal.
15. Selector Switches and Indicating Lights:

- a. Selector switches and indicating lights shall be supplied by one manufacturer and be of the same series or model type.
 - b. Type: Heavy duty, oil tight.
 - c. Selector switch contacts shall be rated for AC or DC current with devices simultaneously operated by the switch contacts but not less than 10 Amps resistive at 120 VAC/VDC continuous.
 - d. Indicating lights shall be rated for 120 VAC. Lamps shall be high visibility LED type, long life (20,000 hours minimum). Indicating lights shall be push-to-test.
16. Electrical Locations:
- a. Terminal boxes for incoming and outgoing signal leads shall be located at the top or bottom of the panel as indicated or as otherwise required.
17. Power Supply Wiring:
- a. Unless otherwise indicated, all instruments, alarm systems, and motor controls shall operate on 24 VDC.
 - b. At a location near the top of the panel (or bottom), the panel fabricator shall provide terminal box connections for the main power supply entry.
 - c. Instruments located on the same panel section and serving the same process unit may be connected to a common branch circuit from the power supply. The number of circuits depends on the circuit load as indicated. Different panel sections or different process units shall not use common branch circuits. When instruments are not equipped with integral fuses, fuses shall be provided as required for the protection of individual instruments against fault currents. Fuses shall be mounted on the back of the panel in a fuse holder, and each fuse shall be identified by a service name tag.
 - d. Each potentiometer type instrument, electronic transducer, controller, or analyzer shall have an individual disconnect switch. Disconnect switches shall have metal or plastic tags indicating instrument tag numbers. Individual plug and cord set power supply connections may be used without switches when indicated.
18. Alarm Wiring: The panel vendor shall provide all alarms including light cabinets, audible signal units, test and acknowledge switches, and remote logic units as indicated. Interconnecting wiring to panel mounted initiating devices shall also be wired by the panel vendor. The wiring from external initiating devices shall be

provided by the installation contractor. Where plug and cord sets are provided for component interconnection, the panel vendor shall harness and support the cables in neat and orderly fashion. Where separate wire is required, panel vendor shall install No. 16 AWG with THWN or THHN insulation between all components.

19. Signal Wiring:

a. Signal Wire - Non Computer Use:

(1) Signal wire shall be twisted pair or triads in conduit or troughs. Cable shall be constructed of No. 16 AWG copper signal wires with THWN or THHN insulation.

(2) Color code for instrument signal wiring shall be as

follows: Positive (+): Black
Negative (-): White

(3) Multiconductor cables where indicated shall consist of No. 16 AWG copper signal wires twisted in pairs, with 90-C, 600-V fault insulation. A copper drain wire shall be provided for the bundle with a wrap of aluminum polyester shield. The overall bundle jacket shall be PVC.

b. Multi-conductor cables, wireways and conduit shall be sized to allow for 10% spare signal wire.

20. 24 VDC Power Supply:

a. Panels shall be equipped with a linear 24 volt D.C. power supply for driving current loops and other D.C. powered equipment. It shall be solidly mounted, labeled and located in plain view oriented for ease of maintenance. Unit shall be sized based on 200% of load requirements of equipment actually furnished. 24 VDC power supply shall be SITOP order No. 6EP3334-8SB00- 0AY0, 120/230 Vac input, 24 Vdc output, 10A (12A up to +45°C), with 3% +/- voltage regulation from no-load to full-load.

21. UPS System:

a. The UPS system shall be Siemens DC UPS module SITOP UPS500S – 24V / 15A, RFI specification – class B, and Degree of protection – IP20. Output current rated value shall be 15A and charge current approximately 1A.

(3) Basic Unit Order No. 6EP1 933-2EC51; Qty. 1.

(4) Expansion Module Order No. 6EP1 935-5PG01; Qty. 5.

- C. Labor and Workmanship: All panels shall be fabricated, piped and wired by fully qualified workmen who are properly trained, experienced, and supervised.

PART 3 -- EXECUTION

3.1 INSTALLATION

- A. Preparation and Shipping:
 - 1. Crate panels for shipment using a heavy framework and skids. The panel sections shall be cushioned to protect the finish of the instruments and panel during shipment. All instruments which are shipped with the panel shall further have suitable shipping stops and cushioning material installed to protect parts which could be damaged due to mechanical shock. Each separate panel unit shall be provided with removable lifting lugs to facilitate handling.
 - 2. All shipments shall be by air ride van, unless otherwise indicated.
 - 3. All control panel testing and inspection shall be performed before shipping.
- B. Control panels shall be installed in accordance with Section 13300 - Instrumentation and Control.

3.2 CONTROL PANEL SIGNAL AND CONTROL CIRCUIT WIRING

- A. Wiring Installation: All wires shall run in plastic wireways except for the following:
 - 1. Field wiring.
 - 2. Wiring between mating blocks in adjacent sections.
 - 3. Wiring to panel-mounted components.
- B. Wiring to Rear Terminals: Wiring to rear terminals on panel-mount instruments shall be in plastic wireways secured to horizontal brackets above or below the instruments in about the same plane as the rear of the instruments.
- C. Shop drawings shall show conformance to the above wiring installation requirements.
- D. Wire Marking: Each signal, control, alarm, and indicating circuit conductor connected to a given electrical point shall be designated by a single unique number which shall be shown on all shop drawings. These numbers shall be marked on all conductors at every terminal using white numbered wire markers which shall be plastic-coated cloth, or permanently marked heat-shrink plastic.
- E. Wires shall be fitted with a crimp type spade lug of the proper size at screw terminals

except in the cases of termination fittings designed for compression or solder type termination. There shall be at least 2" of unencumbered wire extending from any point of attachment within the panel. Wire numbers shall be located within 1" of the point of attachment and shall be applied such that the number can be read from the front of the panel without rotating the wire. No more than two wires shall be located at any point of termination, including terminal blocks (terminal blocks specified are designed to accept two points of termination at each side).

- F. Wires shall be routed through Panduit brand wireway of the size shown on the drawings. Routing shall separate 24 Vdc paths from 120 Vac paths as far as possible. Wireway shall be secured to the removable back panel by multiple pan head screws of the proper size at intervals of one at every other mounting hole station provided by Panduit. The mounting hole station shall be completely utilized at the extreme ends of each wireway segment. Within wireway, wire bundles shall be loosely bound with individual plastic tie wraps at intervals of approximately two feet.
- G. External to wireway, wire shall be bundled neatly and secured with plastic tie wraps at intervals of approximately 8". Wire splicing within the Instrument Panel is not acceptable.
 - 1. Wiring color code shall be as shown in this subsection
 - a. Blue: 24vdc +
 - b. Brown: 24vdc B
 - c. White: 120vac common
 - d. Black: 120vac power
 - e. Red: 120vac control power
 - f. Green: ground
 - g. Violet: 12vdc +
 - h. Yellow: 12vdc B
 - i. Belden black (+)
 - j. Belden clear (-)
- H. Panels shall be fitted with a duplex electrical outlet as shown on the drawings. Illumination at the panel interior shall be by LED panel lights operated by a door switch.

Provide a door switch wired to the terminal blocks, as shown on the drawings, to indicate when the RCP door is open.

- I. Legend plates shall be laminated plastic or phenolic, black over white engraved by removing black material to reveal white letters. Lettering shall be sharp and clear, 3/16" nominal height. Engraving which is not uniform either letter to letter or within each character will not be accepted. Tags identifying interior components shall be affixed to the cabinet back panel.
 1. The following interior components shall be labeled with phenolic tags:
 - a. Low voltage relay
 - b. Control relays
 - c. Modicon PLC
 - d. Microwave Data Systems Radio
 - e. AC line surge arrestor
 - f. DC UPS
 - g. DC power supply
 - h. Each terminal strip

3.3 CALIBRATION, TESTING, AND INSTRUCTION

- A. General: Calibration, testing, and instruction shall be performed in accordance with Section 13300 - Instrumentation and Control.
- B. Inspection and Approval:
 1. The panel fabricator shall conduct the following tests before shipment:
 - a. All alarm circuits rung out to determine their operability.
 - b. All electrical circuits checked for continuity and where applicable, operability.
 - c. All nameplates checked for correct spelling and size of letters.
 - d.
 - e. Any other test required to place the panel in an operating condition.
 2. The CONTRACTOR shall furnish all necessary testing devices and sufficient manpower to perform the tests required by the ENGINEER.

3. If the above tests have not been performed before shipment, the CONTRACTOR shall be liable for back charges by the ENGINEER for the extra time required for inspections.

Each control panel shall be tested in the field for functional operation after the connection of external conductors, and before equipment startup.

PART 4 - MEASUREMENT AND PAYMENT

4.1 536/390 ZONE PRESSURE REGULATING STATION RELOCATION, BID ITEM NO. 62:

- A. No measurement shall be made for this item.
- B. 536/390 ZONE PRESSURE REGULATING STATION RELOCATION will be paid at the Contract lump sum amount for 536/390 ZONE PRESSURE REGULATING STATION RELOCATION, which amount will include full compensation for furnishing all labor, materials, equipment, tools, export of excavated material, soil compaction, incidentals and for doing the work including preparation and implementation of the plan, as shown on the drawings and as specified in these specifications and no additional compensation will be allowed.
- C. Payment shall be made upon completion and acceptance of pressure regulating station.

4.2 SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE, BID ITEM NO. 63:

- A. No measurement shall be made for this item.
- B. SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE will be paid at the Contract lump sum amount for SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE, which amount will include full compensation for furnishing all labor, materials, equipment, tools, and incidentals and for doing the work including preparation and implementation of the plan, as shown on the drawings and as specified in these specifications and no additional compensation will be allowed.
- C. Payment shall be made upon completion and acceptance of the sump pump installation.

END OF SECTION

SECTION 13374

CONTROL PANEL INSTRUMENTATION

PART 1 - GENERAL

1.1 WORK OF THIS SECTION

- A. The CONTRACTOR shall provide all control panel instrumentation, complete and operable, in accordance with the Contract Documents.
- B. The Contractor shall provide PLC Programming for the project. Programming of the Central HMI system will be done by the City under a separate contract.

1.2 RELATED SECTIONS

- A. The Work of the following Sections applies to the Work of this Section. Other Sections, not referenced below, also apply to the extent required for proper performance of this Work:
 - 1. Section 13300 Instrumentation and Control
 - 2. Section 13370 Control Panels

1.3 CONTRACTOR SUBMITTALS

- A. Shop drawings, information, and data sheets shall be submitted in conformance with the requirements of Section 13300 - Instrumentation and Control and Section 13370 - Control Panels.
- B. Submit a preliminary copy of all documentation with the Factory Test procedure submittal. Submit both hard and electronic "as built" documentation with the final O&M manual submittal.

1.4 GENERAL REQUIREMENTS

- A. Provide a PLC system as shown on the drawings and detailed in these specifications. Provide all I/O (analog and discrete), interface modules, and other cabling and hardware as needed to provide a fully functioning system meeting these specifications.
- B. All software integration and configuration work on the project is to be

completed by the approved Instrumentation Subcontractor, unless otherwise noted. Minimum Instrumentation Subcontractor qualifications are detailed in Section 13300.

- C. Provide comprehensive documentation of the program logic, as required in Section 3.

1.5 SOFTWARE LICENCES

A. General

1. Provide the City a non-exclusive, fully paid, perpetual license to use all the software supplied as part of this contract.
2. Provide unlimited license for all Application Software developed or configured by the Instrumentation Subcontractor for this project. Unlimited to mean the City has the right to:
 - a. Use, duplicate and modify the software in any manner, in whole or in part.
 - b. Use the software in any quantity, with any type of equipment, and for any purpose.
 - c. To make back-up copies of all software.

B. Software updates

1. Provide the City with 12 months free software updates and technical support for all manufacturer's software supplied as part of this project.
2. Upgrades and patches shall be installed by the Instrumentation Subcontractor. Schedule upgrades with the Owner.
3. The Instrumentation Subcontractor to test system after upgrade.

1.6 PLC LOGIC AND DOCUMENTATION

A. Logic Configuration shall be:

1. Logically set out in a modular format to follow the process flow.
2. Have all analogs scaled to Owner units (e.g. gpm, psi etc.) and

annotate with the units where ever it is used in the program.

B. Logic Documentation:

1. Contractor is responsible for PLC & device programming. Make maximum use of the documentation facilities which come as part of the Unity Pro programming environment.
2. Use mnemonic signal and variable names that reflect the signal/variable function.
3. To provide good readability, make full use of the allowable number of characters in a signal or variable name. Excessively contracted naming that detracts from readability will not be accepted.
4. Provide a title and short English description at the start of each new strategy that explains the purpose of the logic that follows, and how it functions.
5. For each sub-section of logic within a strategy, provide a comment which explains to another programmer, the functionality of the logic. The purpose is to assist the reader with understanding the intent of the logic.
6. Provide a title, revision number, date, and page number on every page of logic.

C. Original Disks and Software Backups: Provide the Owner with:

1. Original disks for all standard Manufacturer's software supplied.
2. An electronic back-up copy of all "as built" software configured by the Instrumentation Subcontractor.
3. A record of all device hardware/ software configuration settings including IP addresses used.
4. A copy of all software licenses with the City named as the software owner.
5. Provide owner with an unrestricted and current software disk of Unity Pro by Schneider Electric.

PART 2 - PRODUCTS

2.1 GENERAL

- A. The PLC system shall operate in ambient conditions of 32 to 140°F temperature and 5 to 95 percent relative humidity without the need for purging or air conditioning
- B. PLC system shall be designed with high noise immunity to prevent occurrence of false logic signals resulting from switching transients, relay, and circuit breaker noise or conducted and radiated radio frequency interference.
- C. The controller shall be grounded to the panel ground bus with a separate ground conductor sized per the manufacturers grounding requirements.
- D. Programming software: PLC Program should be written in current version of Unity Pro by Schneider Electric; no equals.

2.2 PROGRAMMABLE LOGIC CONTROLLERS

- A. The microcontroller system and subsystem components shall be Modicon Momentum Unity M1 Series, No "Or Equal".
- B. Construction: The microcontroller shall be of solid-state design. All CPU operating logic shall be contained within an integral control chassis. Microcontroller terminal base units shall allow for the easy removal and replacement of the controller. The controller shall be capable of operating in a hostile industrial environment without fans, air conditioning, or electrical filtering (up to 60 degrees C and 95 percent humidity).
- C. The PLC shall be a Modicon Momentum Unity M1 processor of the latest design with conformal coating, consisting of the following individual components:
 - 1. Modicon Momentum, M1 Processor Adaptor; Part No. 171CBU98091.
 - 2. Modicon Momentum, Interbus Communications Adapter; Part No. 170INT11000C.
 - 3. Modicon Momentum, 8 Channel 4-20mA Differential Analog Input I/O Base; Part #170AAI03000C.
 - 4. Modicon Momentum, 24 VDC 16 point Discrete Input and 24 VDC 16 point Discrete Output I/O Base; Part #170ADM35010C.

5. Modicon Momentum, Interbus Cable; Part #170MCI00700.
6. Modicon Momentum, Terminal Block; Part #170XTS00100.

PART 3-- EXECUTION

3.1 GENERAL

- A. Seven Day Acceptance Test: After start-up has been completed, the System shall undergo a 7-day acceptance test. The System shall run continuously for 7 consecutive days. During this period, all System functions shall be exercised. Any System interruption and accompanying component, subsystem, or program failure shall be logged for the cause, time of occurrence and duration of each failure. A failure shall cause termination of the 7-day acceptance test. When the cause of a failure has been corrected, a new 7-day acceptance test shall be started.
- B. Each time the CONTRACTOR's technician is required to respond to a System malfunction, a report shall be prepared which includes details on the nature of the complaint or malfunction and the resulting repair action required and taken.

3.2 PLC PROGRAMMING REQUIREMENTS

- A. The Instrumentation Subcontractor shall program the PLC such that it will communicate as specified with both the Central HMI.

3.3 CONTROLLER TUNING

- A. Tuning of closed loop controllers
 1. Tune PID controllers by adjusting the proportional and integral gain parameters to provide a first over shoot of approximately 10 to 15%, and to provide a short settling time.
 2. Where cascade loops are used, tune the innermost loop first, and then the loop outside it. To provide stability ensure that the closed loop response of an outer loop is 5 to 8 times slower than the inner loop.
- B. Document closed loop response
 1. After final tuning of each loop provide trend graphs showing loop response to a 5% change in setpoint, and a 5% upset in controlled variable.
 2. Submit annotated loop response graphics with the Operations

manual. Provide a title for each graphic and note tuning parameters used on each sheet.

PART 4 – MEASUREMENT AND PAYMENT

4.1 536/390 ZONE PRESSURE REGULATING STATION RELOCATION, BID ITEM NO. 62:

- A. No measurement shall be made for this item.
- B. 536/390 ZONE PRESSURE REGULATING STATION RELOCATION will be paid at the Contract lump sum amount for 536/390 ZONE PRESSURE REGULATING STATION RELOCATION, which amount will include full compensation for furnishing all labor, materials, equipment, tools, export of excavated material, soil compaction, incidentals and for doing the work including preparation and implementation of the plan, as shown on the drawings and as specified in these specifications and no additional compensation will be allowed.
- C. Payment shall be made upon completion and acceptance of pressure regulating station.

4.2 SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE, BID ITEM NO. 63:

- A. No measurement shall be made for this item.
- B. SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE will be paid at the Contract lump sum amount for SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE, which amount will include full compensation for furnishing all labor, materials, equipment, tools, and incidentals and for doing the work including preparation and implementation of the plan, as shown on the drawings and as specified in these specifications and no additional compensation will be allowed.
- C. Payment shall be made upon completion and acceptance of the sump pump installation.

END OF SECTION

SECTION 13390

COMMUNICATIONS

PART 1 - GENERAL

1.1 WORK OF THIS SECTION

- A. The Work of this Section includes providing a complete and operational communication system between the remote project facilities and the existing Water Operations Control Systems Center. The system shall include interface hardware, modules, radio, communication bridges, and application software necessary for a communication network.
- B. The Work, equipment, and services required by this Section shall be provided and furnished by the Communication System Contractor.

1.2 RELATED SECTIONS

- A. The Work of the following Sections applies to the Work of this Section. Other Sections, not referenced below, shall also apply to the extent required for proper performance of this Work.
 - 1. Section 13300 Instrumentation and Control
 - 2. Section 13370 Control Panels
 - 3. Section 13374 Control Panel Instrumentation
 - 4. Section 16010 Basic Electrical Requirements

1.3 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

- A. The Work of this Section shall comply with the current editions of the following codes as adopted by the City of San Diego:
 - 1. Uniform Fire Code
 - 2. National Electrical Code
- B. Except as otherwise indicated, the current editions of the following standards apply to the Work of this Section:
 - 1. ISA RP 55.1 Hardware Testing of Digital Process Computers

- | | | |
|----|-----------------|---|
| 2. | NEMA ICS-6 | Enclosures for Industrial Controls and Systems |
| 3. | MIL Q STD 9858A | Quality Program Requirements |
| 4. | MIL STD 2170 | Reliability Prediction of Electronic Equipment |
| 5. | IEEE 802.2 | Reliability Prediction of Electronic Equipment |
| 6. | SAMA PMC-32 | Logical Link Control |
| 7. | SAMA PMX-32.1 | Process Instrumentation Reliability Terminology |

1.4 CONTRACTOR SUBMITTALS

- A. Shop drawings of all products listed in Part 2 shall be submitted.

1.5 ENVIRONMENTAL CONDITIONS

- A. The communication systems shall be designed and constructed for operation under the following environmental conditions:
1. Equipment outdoors, coastal environment:
 - a. Temperature range: 32 through 104 degrees F
 - b. Thermal shock: two degree F per minute maximum
 - c. Relative humidity: 20 through 90%

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Delivery of Materials: Products shall be delivered in original, unbroken packages, containers, or bundles bearing the name of the manufacturer.
- B. Storage: Products shall be carefully stored in a manner recommended by the manufacturer in an area that is protected from the elements.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Where there is more than one item of similar equipment being furnished under this Section, all equipment of the same type shall be the product of a single manufacturer.

- B. All components shall be the most recent field proven models marketed by their manufacturers at the time of submittal of the shop drawings unless otherwise indicated.
- C. All instrumentation shall be suitable for operation in the ambient conditions at the equipment installation locations. Heating, cooling, and dehumidifying devices shall be incorporated with the outdoor instrumentation in order to maintain it within its rated environmental operating ranges. The Communication System Contractor shall provide all power wiring for these devices.
- D. The Communication System Contractor shall coordinate the installation of the communication system with all applicable utility companies and regulatory agencies having jurisdiction to secure approvals and permits which are required.

2.2 RADIO TELEMETRY

- A. Licensing and Surveying:
 - 1. The OWNER has FCC licensing for the sites included in this project. The license allows the OWNER to operate 928-952 MHZ frequencies for multiple address systems (MAS). The equipment provided shall be suitable for use on the assigned frequencies.
 - 2. The sites included in this Contract have been surveyed and are included in the radio feasibility study performed by the OWNER. The results of this survey indicate reliable radio communications can be implemented between the central station and remote sites. The report is available to the Communication System Contractor from the ENGINEER.
 - 3. Before installation of the radio equipment, the Communication System Contractor shall verify that the radio paths are still reliable based on the present terrain and structure conditions. Any structures or other objects that may obstruct the radio paths or cause transmission or path fade margin problems shall be brought to the ENGINEER's attention immediately.
- B. Transmission: RF transmitters shall be directly frequency modulated by a built-in digital modem from the digital data stream furnished by the central computer system. RF receivers shall provide a digital data stream to the central computer system. Each assembly shall be capable of transmitting and receiving data at a rate of 9600 baud over a 928-952 MHz FCC assigned channel.

C. Fixed Frequency Radio: The fixed frequency radio in the RCP shall be capable of processing data for transmission via an antenna system. The contractor shall install the fixed frequency radio inside the RCP Cabinet. The radio equipment and accessories shall be mounted on a single panel supplied by the manufacturer. General Electric Digital Energy MDS model SD09MD-CES-NNSNN shall be furnished

1. General:

- a. Frequency Range: 928-960MHz
- b. Channel Bandwidth: Configurable for 25KHz or 12.5KHz
- c. Operating Mode: Half Duplex

2. The City shall be responsible for configuring each data radio to interface with the PLC controller or SCADA system as required.

D. Directional Patch Antenna System

1. The 902 – 928 MHz directional patch antenna shall have the following features:

- a. 60-degree Beam Width
- b. Horizontal Polarity
- c. 9 dBi of Gain
- d. Manufacturer: HyperLink Model HG8909P; or approved equal.

2. Antenna feed lines shall be 1/4-inch low loss coax for remote sites. Feed lines shall be routed to radio transceivers through conduit or inside the antenna mast. Provide Andrew Superflex FSJ1-50A. Coax connectors shall be 1/4-inch male N, Andrew F1PNM-H (QTY 2). Crimp style male N connector shall be Amphenol RFX (QTY 2). Jumper coax shall be RG58U 50 ohm dual shield solid center conductor.

3. Transmission lines and the antenna system shall be grounded.

4. The lightning arrester is a Polyphaser IS-B50LN-C2.

2.3 NAMEPLATES, TOOLS AND SPARE PARTS

- A. Tools: The Work includes all tools required to repair, calibrate, program, and maintain the equipment.
- B. Test Equipment: It is intended that the diagnostic software furnished with the system shall be able to troubleshoot communications to the circuit board level and that local repairs will be limited to board replacement. Any special diagnostic tester required to perform troubleshooting to this level shall be furnished. A portable calibrator for the radio system shall be furnished.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: The Communication System Contractor shall employ installers who are skilled and experienced in the installation and connection of all the elements, accessories and assemblies of communication systems.
- B. Access: All equipment shall be provided as indicated, or, if not indicated, so that it will be readily accessible for operation and maintenance. The ENGINEER reserves the right to require minor changes in equipment location before roughing in without any additional cost to the OWNER.
- C. Review: The Communication System Contractor shall review the existing site conditions and examine all shop drawings for equipment in order to determine exact routing and final terminations for all wiring and cables. Exact routing shall be shown on the Record Drawings.
- D. Installation and Connection: The Communication System Contractor shall install and connect all field-mounted components and assemblies and as recommended by the manufacturer and as indicated.
- E. Conduits: In building interior locations, conduits shall be surface mounted on walls or ceilings wherever possible and parallel to building lines. Conduit shall not be routed on floors unless indicated otherwise. In exterior locations, conduit shall be routed below grade. Existing concrete or asphalt slabs shall be sawcut, conduit installed, and the cut repaired to original condition. Exposed conduit and raceway shall be installed perpendicular or parallel to building lines.
- F. Final Checks: Final check of the communication systems shall be performed as an integral part of the system specified in Section 13300 - Instrumentation and Control.

3.2 FIELD TESTING

- A. RF Equipment Testing: The following measurements shall be made, recorded and compared to normal reading on each RF assembly prior to system testing to ensure that all equipment meets published specifications:
 - 1. Operating voltages
 - 2. Transmitter frequency
 - 3. Transmitter output power (at output of duplexer)
 - 4. Transmitter deviation
 - 5. Receiver local oscillator frequency
 - 6. Receiver sensitivity (10 to -6 BER)
- B. Testing: All systems furnished under this Contract shall be exercised through operational tests in the presence of the ENGINEER in order to demonstrate compliance with requirements. The testing of the communication system shall be performed in accordance with and as an integral part of the testing of the instrumentation and control specified in Section 13300 - Instrumentation and Control.

PART 4 – MEASUREMENT AND PAYMENT

4.1 536/390 ZONE PRESSURE REGULATING STATION RELOCATION, BID ITEM NO. 62:

- A. No measurement shall be made for this item.
- B. 536/390 ZONE PRESSURE REGULATING STATION RELOCATION will be paid at the Contract lump sum amount for 536/390 ZONE PRESSURE REGULATING STATION RELOCATION, which amount will include full compensation for furnishing all labor, materials, equipment, tools, export of excavated material, soil compaction, incidentals and for doing the work including preparation and implementation of the plan, as shown on the drawings and as specified in these specifications and no additional compensation will be allowed.
- C. Payment shall be made upon completion and acceptance of pressure regulating station.

4.2 SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE, BID ITEM NO. 63:

- A. No measurement shall be made for this item.

- B. SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE will be paid at the Contract lump sum amount for SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE, which amount will include full compensation for furnishing all labor, materials, equipment, tools, and incidentals and for doing the work including preparation and implementation of the plan, as shown on the drawings and as specified in these specifications and no additional compensation will be allowed.

- C. Payment shall be made upon completion and acceptance of the sump pump installation.

END OF SECTION

SECTION 13414

FLOW COMPUTER KIT- METERING VALVE

PART 1 -- GENERAL

1.1 SUMMARY

- A. This section describes the requirements for flow monitoring on pressure reducing valves. Provide enclosure as indicated in the drawings.
- B. The regulating valves include instrumentation and flow computer equipment to provide accurate flow measurement. An output signal of 4-20 milli-Amps shall be provided for the appropriate range of flow.
- C. Related sections include:
 - 1. Section 13300 – Instrumentation and Control
 - 2. Section 13430 – Pressure Transmitters
 - 3. Section Field Mounted Instrumentation

1.2 SUBMITTALS

- A. Provide catalog data for all products listed in Part 2.

1.3 PERFORMANCE REQUIREMENTS

- A. Provide instruments which are capable of meeting the following performance requirements when installed in accordance with the manufacturers recommendations:

Accuracy: +/-1.0 percent

Repeatability: +/-0.5 percent

Linearity: +/-0.5 percent

Measurement Range: 1 to 20 FPS minimum, maximum pressure differential of 100 psi.

1.4 EXISTING CONDITIONS

- A. All pressure regulating valves with flow metering kit under these contract documents

are 16" CLA-VAL Pressure Reducing Valves.

B. MAINTENANCE

1. Include the following spare parts:
 - a. One set of manufacturers recommended spare parts.

PART 2 -- PRODUCTS

2.1 FLOW COMPUTER KIT

- A. The flow computer kit shall contain the following components:
 1. NEMA 4 Differential pressure transmitters shall be provided by Cla-Val and selected for the differential pressure range of each metering valve. Refer to Section 13430.
 2. A NEMA 4 metering valve position transmitter, CLA-VAL Model No. X117C, and valve stem adapter.
 3. Microprocessor (flow computer) with proprietary algorithm program to compute the flowrate and to display and provide an output flow signal.
- B. The NEMA 4 flow computer kit shall be CLA-VAL Model No. 131 VF flow module. The flow modules shall be have DIN mounting and loose shipped for remotemounting.

Tag No.	Service	Range	Drawing
FIT-100	16 Inch valve	TBD	E-11
FIT-200	16 Inch valve	TBD	E-11

PART 3 -- EXECUTION

3.1 INSTALLATION

- A. Verify valve model number, size, pressure class, and other information required by the manufacturer for programming and other requirements. The Contractor is responsible for field verifying all required information.
- B. Modify existing valves as recommended by the manufacturer. Locate components as indicated on the plans. Provide all adapters as required.

PART 4 - MEASUREMENT AND PAYMENT

4.1 536/390 ZONE PRESSURE REGULATING STATION RELOCATION, BID ITEM NO. 62:

- A. No measurement shall be made for this item.
- B. 536/390 ZONE PRESSURE REGULATING STATION RELOCATION will be paid at the Contract lump sum amount for 536/390 ZONE PRESSURE REGULATING STATION RELOCATION, which amount will include full compensation for furnishing all labor, materials, equipment, tools, export of excavated material, soil compaction, incidentals and for doing the work including preparation and implementation of the plan, as shown on the drawings and as specified in these specifications and no additional compensation will be allowed.
- C. Payment shall be made upon completion and acceptance of pressure regulating station.

4.2 SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE, BID ITEM NO. 63:

- A. No measurement shall be made for this item.
- B. SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE will be paid at the Contract lump sum amount for SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE, which amount will include full compensation for furnishing all labor, materials, equipment, tools, and incidentals and for doing the work including preparation and implementation of the plan, as shown on the drawings and as specified in these specifications and no additional compensation will be allowed.
- C. Payment shall be made upon completion and acceptance of the sump pump installation.

END OF SECTION

SECTION 13427

LIQUID LEVEL SWITCH - FLOAT (TILT)

PART 1 -- GENERAL

1.1 SUMMARY

- A. This section describes the requirements for float level switches used vault flood detection.
- B. Related sections include:
 - 1. Section 13300 – Instrumentation and Controls

1.2 SUBMITTALS

- A. Provide catalog data for all products listed in Part 2.

1.3 PERFORMANCE REQUIREMENTS

- A. Provide level float switches capable of meeting the following performance requirements when installed in accordance with the manufacturer's recommendations.
 - 1. Repeatability: +/- 1.0 inch of float setting.
 - 2. Temperature: 32 to 130 degrees F.
 - 3. Electrical: SPDT Normally Closed Mercury Switch, rated for 2 amps at 120 Vac.

1.4 MAINTENANCE

- A. Include the following spare parts:
 - 1. One float with integral sealed watertight switch assembly.

PART 2 -- PRODUCTS

2.1 FLOAT SWITCH

- A. Provide switch assemblies as follows:
 - 1. Switch Float: Constructed of molded polyethylene or approved equal.

- 2. Switch Configuration: Float shall be equipped with two switches. One switch shall be closed and the other open below the float's setpoint. Above the setpoint, the switch positions shall reverse. Setpoint differential shall be 1-inch
- 3. Cable: Cable insulation suitable for continuous submergence in water. Conductors shall be minimum 14 AWG stranded copper. Cable length to suit the installation.
- 4. Termination Cabinet: Terminate float switch cables in the flow transmitter enclosures indicated.

- B. Provide Flygt ENM-10 or equal by Consolidated Electric, Anchor Scientific, or approved equal. Include mounting hardware.

Tag No.	Size	Trip Set Point	NEMA Rating
LSH	N/A	N/A	4
LSL	N/A	N/A	4

2.2 FLOOD SWITCH

- A. Switch shall be a stem mounted float device with 304 stainless steel stem, Buna N Float Material, Lucite Slosh Shield, IMO/GEMS Model LS-270 or approved equal.

Tag No.	Size	Trip Set Point	NEMA Rating
LSHH	N/A	N/A	4

PART 3 -- EXECUTION

3.1 INSTALLATION

- A. Provide junction box in the vault with a non-metallic cord grip connector for support of suspended float switch. Wire the float switch using the manufacturer's recommended flexible cable to the remotely located flow transmitter enclosure indicated.
- B. Provide easily removable switch for maintenance or cleaning, without emptying the vault where mounted.

- C. The vault flood switch shall be approximately 2 to 4 inches in diameter. Vault flood switches shall detect a flood condition 3 inches from the floor.

PART 4 – MEASUREMENT AND PAYMENT

4.1 536/390 ZONE PRESSURE REGULATING STATION RELOCATION, BID ITEM NO. 62:

- A. No measurement shall be made for this item.
- B. 536/390 ZONE PRESSURE REGULATING STATION RELOCATION will be paid at the Contract lump sum amount for 536/390 ZONE PRESSURE REGULATING STATION RELOCATION, which amount will include full compensation for furnishing all labor, materials, equipment, tools, export of excavated material, soil compaction, incidentals and for doing the work including preparation and implementation of the plan, as shown on the drawings and as specified in these specifications and no additional compensation will be allowed.
- C. Payment shall be made upon completion and acceptance of pressure regulating station.

4.2 SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE, BID ITEM NO. 63:

- A. No measurement shall be made for this item.
- B. SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE will be paid at the Contract lump sum amount for SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE, which amount will include full compensation for furnishing all labor, materials, equipment, tools, and incidentals and for doing the work including preparation and implementation of the plan, as shown on the drawings and as specified in these specifications and no additional compensation will be allowed.
- C. Payment shall be made upon completion and acceptance of the sump pump installation.

END OF SECTION

SECTION 13430

PRESSURE TRANSMITTER

PART 1 -- GENERAL

1.1 SUMMARY

- A. This section describes the requirements of two-wire type pressure transmitters.
- B. Related sections include:
 - 1. Section 13300 –Instrumentation and Controls.

1.2 SUBMITTALS

- A. Provide catalog data for all products listed in Part 2.

1.3 PERFORMANCE REQUIREMENTS

- A. Provide instruments that are capable of meeting the following performance requirements when installed in accordance with the manufacturer's recommendations:
 - 1. Accuracy: +/-0.10 percent of calibrated range.
 - 2. Repeatability: +/-0.05 percent of calibrated range.
 - 3. Drift: Less than +/-0.5 percent of span for a six month period.
 - 4. Temperature Effect: Less than +/-0.05 percent per one degree F. of span from -30 to 150 degrees F.
 - 5. Rangeability: 40 to 1
 - 6. Configurations: Gage Pressure

PART 2 -- PRODUCTS

2.1 PRESSURE TRANSMITTER

- A. Meet the following unless otherwise noted on the instrument schedule:

1. Mounting: Provide stainless steel wall mounting hardware.
2. Power Supply: 12-45 Vdc.
3. Output: 4-20 mAdc into 1500 ohms load. Linear output for gage pressure and square root output function for differential pressure.
4. Zero Suppression or Range Elevation: 150 percent of calibrated span.
5. Range: 9 – 360 psi
6. Maximum Static Pressure: 2,300 psig.
7. Humidity: 10 to 100 percent Relative Humidity.
8. Sensing Element: Diaphragm type.
9. Vent/Drain position: Upper, one for each sensing cavity.
10. Material: Sensing element components to be 316 stainless steel. NEMA 4X electronic enclosure
11. Process Connection: 0.5 inch 14 NPT
12. Electrical Connector: 0.5 inch 14 NPT.
13. Identification plate: 316 SST plate with site mnemonic, tag and loop numbers. Use SST wire to fasten plate to instrument for easy viewing.
14. Design: Provide microprocessor-based electronic design with HART protocol digital communication.
15. Manufacturer: SMAR model LD301 or equal.

B. Provide gage pressure transmitters for pipeline. Provide differential pressure transmitters for flow measurement.

Tag No.	Service	Range	Drawing
DPT-100	16" Valve	TBD	E-3
PIT-390	Zone 390 Pressure	TBD	E-3
DPT-200	16" Valve	TBD	E-3
PIT-536	Zone 536 Pressure	TBD	E-3

2.2 ACCESSORIES

- A. Provide 2-valve manifold and pipe mount bracket for each transmitter.

PART 3 -- EXECUTION

3.1 INSTALLATION

- A. Install the transmitter in an orientation where the sensing diaphragms are in a vertical plane.
- B. Allow sufficient clearance overhead for cover removal and around the transmitter to provide an access for necessary adjustments.
- C. Where transmitters are located below the pressure tap slope horizontal lines (tubing) a minimum of one inch per foot downward from the pressure taps.
- D. Where transmitters are located above the pressure tap slope horizontal lines a minimum of one inch per foot upward from the pressure tap.
- E. Pressure lines from the tap location to the transmitter shall not have changes in elevation that trap air in the line.
- F. Assemble screwed fittings with Teflon paste or compatible metallic paste on the external threads. Teflon tape shall not be used.
- G. Local output indicators to be easily accessed for viewing and service by operations personnel.

PART 4 - MEASUREMENT AND PAYMENT

4.1 536/390 ZONE PRESSURE REGULATING STATION RELOCATION, BID ITEM NO. 62:

- A. No measurement shall be made for this item.
- B. 536/390 ZONE PRESSURE REGULATING STATION RELOCATION will be paid at the Contract lump sum amount for 536/390 ZONE PRESSURE REGULATING STATION RELOCATION, which amount will include full compensation for furnishing all labor, materials, equipment, tools, export of excavated material, soil compaction, incidentals and for doing the work including preparation and implementation of the plan, as shown on the drawings and as specified in these specifications and no additional compensation will be allowed.
- C. Payment shall be made upon completion and acceptance of pressure regulating station.

4.2 SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE, BID ITEM NO. 63:

- A. No measurement shall be made for this item.
- B. SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE will be paid at the Contract lump sum amount for SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE, which amount will include full compensation for furnishing all labor, materials, equipment, tools, and incidentals and for doing the work including preparation and implementation of the plan, as shown on the drawings and as specified in these specifications and no additional compensation will be allowed.
- C. Payment shall be made upon completion and acceptance of the sump pump installation.

END OF SECTION

SECTION 16010

BASIC ELECTRICAL REQUIREMENTS

PART 1 -- GENERAL

1.1 SUMMARY

- A. This section summarizes general requirements of electrical work specified in Division 16.

1.2 DESCRIPTION OF WORK

- B. The Contractor shall furnish labor, materials, equipment and services to store, transport, install, calibrate, and make operational electrical systems and equipment supplied under this contract. Include wiring, conduits, fittings, physical support systems, incidentals, and connections to link the individual components into an integrated system. Typical materials that may be incidentals are terminal lugs not furnished with vendor-supplied equipment, compression connectors for cables, splices, junction and terminal boxes.
- C. The Contractor shall install, wire, and connect all equipment and items furnished by owner and under other divisions that require electrical connections unless otherwise indicated or specified. Include all field connections and terminations to all panels, control equipment and devices, instruments, and to all vendor-furnished packaged equipment.
- D. The Contractor shall include all concrete work required for encasement, installation, or construction of the Work specified in Division 16. Furnish 3000-psi concrete; the following shall apply:
 - 1. Consolidation of encasement concrete around duct banks shall be by hand pudding, and no mechanical vibration shall be permitted.
 - 2. A workability admixture shall be used in encasement concrete, which shall be a hydroxylated carboxylic acid type in liquid form. Admixtures containing calcium chloride shall not be used.
 - 3. Concrete for encasement of conduit or duct banks shall contain an integral red- oxide coloring pigment in the proportion of 8 pounds per cubic yard of concrete.

- E. The Contractor shall test all electrical connections and circuits for proper installation and operation.

1.3 PERMITS

- A. The Contractor shall procure and pay for permits and certificates required by local and state ordinances and fire underwriter's certificate of inspection.

1.4 SUBMITTALS

- A. The contractor shall furnish within 30 days, a complete list of all materials, equipment, apparatus, and fixtures proposed for use. The list shall include type, sizes, names of manufactures, catalog numbers, and such other information required to identify the items.
- B. The Contractor shall include the following information in the submittals for this division:
 - 1. Manufacturer, detailed items description, drawings, catalog literature and data edited to indicate specific items, such as conduit, fittings, supports, wire, cable, junction boxes, and pull boxes being provided.
 - 2. All equipment shall be submitted in a common submittal. All installation details shall be submitted in a common submittal.
 - 3. Installation detail drawings. Include typical details for raceway hangers and supports.
 - 4. Complete material lists for the Work of this division. Such lists shall state the manufacturer and brand name of each item or class of material. Include shop drawings for all grounding work not specifically indicated.
 - 5. Shop drawings are required for materials and equipment listed in other sections. Shop drawings shall provide sufficient information to evaluate the suitability of the proposed material or equipment for the intended use, and for compliance with these Specifications. The following shall be included:
 - a. Front, side, rear elevations and top views with dimensional data.
 - b. Location of conduit entrances and access plates.
 - c. Component data.
 - d. Connection diagrams, terminal numbers, wire numbers, internal

wiring diagrams, conductor size, and cable numbers.

- e. Method of anchoring, seismic requirement; weight.
- f. Types of materials and finish.
- g. Nameplates.
- h. Temperature limitations, as applicable.
- i. Voltage requirement, as applicable.
- j. Front and rear access requirements.

6. Nameplate schedules.

- C. Maintenance manuals of sufficient detail to enable a qualified technician to perform maintenance and repair.
- D. Record Drawings: In addition to the record drawings as part of the record drawings requirements, the Contractor shall show depths and routing of all underground duct banks.

1.5 QUALITY ASSURANCE

- A. The drawings diagrammatically indicate the desired location and arrangement of outlets, conduit runs, equipment, and other items. The Contractor shall determine the exact locations in the field based on the physical size and arrangement of equipment, finished elevations, and other obstructions. Locations shown on the drawings, however, shall be adhered to as closely as possible.
- B. All conduit and equipment shall be installed in a manner to avoid all obstructions and to preserve headroom and keep openings and passageways clear. Where the drawings do not indicate exact locations, such locations shall be obtained from the Resident Engineer. Where equipment is installed without instruction and must be moved, it shall be moved without additional cost to the City.
- C. All materials and equipment shall be installed in accordance with printed recommendations of the manufacturer, which have been reviewed by the Resident Engineer. Workmen skilled in this type of work shall accomplish the installation and installation shall be coordinated in the field with other trades so that interference's are avoided.
- D. All Work, including installation, connection, calibration, testing, adjustment, and paint touchup, shall be accomplished by qualified, experienced personnel working under

continuous, competent supervision. The completed installation shall display competent work, reflecting adherence to prevailing industrial standards and methods.

- E. The Contractor shall furnish adequate means for and shall fully protect all finished parts of the materials and equipment against damage from any cause during the progress of the Work and until acceptable by the Resident Engineer.
- F. All materials and equipment, both in storage and during construction, shall be covered in such a manner that no finished surfaces will be damaged, marred, or splattered with water, foam, plaster, or paint. All moving parts shall be kept clean and dry.
- G. The Contractor shall replace or have refinished by the manufacturer, all damaged materials or equipment, including faceplates of panels and switchboard sections, at no cost to the City.
- H. The Contractor shall perform all tests required by the Resident Engineer or other authorities having jurisdictions. All such tests shall be performed in the presence of the Resident Engineer. The Contractor shall furnish all necessary testing equipment and pay all costs of tests, including all replacement parts and labor necessary due to damage resulting from damaged equipment or from test and correction of faulty installation. The following testing shall be accomplished:
 - 1. Testing for the ground resistance value specified in Section 16450 – GROUNDING.
 - 2. Insulation resistance tests specified in Section 16120 – WIRES AND CABLES.
 - 3. Operational testing of all equipment furnished and/or connected in other sections of Division 16, including furnishing of support labor for testing.
- I. Any test failure shall be corrected in accordance with the industry practices and in a manner satisfactory to the Resident Engineer.
- J. The Contractor shall perform all work in accordance with all applicable provisions of the following:
 - 1. All applicable requirements of the rules and regulations of the local bodies having jurisdiction. In addition, the Work of this division shall comply with the requirements of the current edition of the City of San Diego Supplement Amendments.
 - 2. NFPA-70 “The National Electrical Code”, latest edition.
 - 3. ANSI C-2 “The National Electrical Safety Code”, latest edition.

4. NECA “National Electrical Contractors Association” guidelines.
5. All applicable requirements of the Federal Communication Commission and the Federal Aviation Authority.
6. Government Standards:

FS W-C-596E/GEN(1)	Connector, Plug, Receptacle and Cable Outlet, Electrical Power
FS W-S-896E/GEN(1) Flush	Switches, Toggle (Toggle and Lode), Mounted (ac)
FS WW-C-581D, E	Conduit, Metal, Rigid, And Intermediate; And Coupling, Elbow, and Nipple, Electrical Conduit: Steel, Zinc Coated

Commercial Standards:

ANSI C80.1	Zinc Coated, Rigid Steel Conduit, Specification for
ANSI C80.4	Fittings for Rigid Metal Conduit and Electrical Metallic Tubing, Specifications for
ANSI/UL 467	Grounding and Bonding Equipment, Safety Standard for
ASTM B3	Soft or Annealed Copper Wire
ASTM B8	Specification for Concentric-Lay- Stranded Copper Conductors, Hard, Medium-Hard, and Soft
ASTM B33	Specification for Tinned Soft or Annealed Cooper Wire for Electrical Purposes

ASTM D1784	cell classification PVC 1223-A, B, or C
ICEA S-61-402 Cable	Thermoplastic - Insulated Wire and Cable
ICEA S-66-524, NEMA WC7 Polyethylene	Cross-Linked, Thermosetting, Wire and Cable
ICEA S-68-516, NEMA WC8 Wire	Ethylene Propylene Rubber Insulated and Cable
NEMA 250	Enclosures for Electrical Equipment (1,000 volts maximum
UL 6	Rigid Metal Electrical Conduit
UL 44	Rubber - Insulated Wire and Cable
UL 514	Electrical Outlet Boxes and Fittings

- K. Construction and installation of all electrical equipment and materials shall comply with all applicable provisions of the OSHA Safety and Health Standards (29CFR1910 and 29CFR 1926, as applicable), State Building Standards, and applicable local codes and regulations.

- L. Unless otherwise specified, the Contractor shall use new materials of current production which conform to standards established by Underwriter's Laboratories, Inc., and are so marked or labeled, together with manufacturer's brand or trademark. Equipment and material which are not covered by UL standards will be accepted provided such material is listed, labeled, certified, or otherwise determine to meet safety requirements of an independent nationally recognized testing laboratory acceptable to the local code- enforcement agency having jurisdiction. Equipment of a class which no independent nationally recognized testing laboratory accepts, certifies, lists, labels, or determines to be safe, will be considered if inspected or tested in accordance with national industrial standards such as NEMA or ANSI. Submit certified test reports and shop drawings as evidence of compliance.

- M. The Contractor shall use one manufacturer for like items and associated equipment. Components of an assembled unit need not be products of the same manufacturer.

- N. The Contractor shall not interfere with continuous operation of the Owner's equipment, unless otherwise approved by the Owner or Engineer.
- O. The Contractor shall inspect the intended storage space at the site. Provide conditioning as required to protect the equipment. Provide a written report on the adequacy of storage.
- P. The Contractor shall protect all stored and installed materials and equipment from physical damage, adverse weather conditions, moisture, and corrosion until final acceptance. Replace or repair any damaged equipment to the satisfaction of the Engineer.

1.6 CLEANUP

- A. **Cleaning of Materials and Equipment:** All parts of the materials and equipment shall be thoroughly cleaned. Exposed parts shall be thoroughly clean of cement, plaster, and other materials. All oil and grease spots shall be removed with a nonflammable cleaning solvent. Such surfaces shall be carefully wiped and all cracks and corners scraped out. Paint touchup shall be applied to all scratches on panels and cabinets. Electrical cabinets or enclosures shall be vacuum cleaned before final acceptance.
- B. **Cleaning of the Site:** During the progress of the Work, the Contractor shall clean the premises and leave the premises and all portions of the site free of debris.

1.7 DEMOLITION AND RELATED SITES WORK

- A. **Installation of New Equipment in Existing Structures:**
 - 1. Installation of certain new equipment and devices is required in existing structures. For this phase of the Work, the Contractor shall remove existing equipment or devices, install new equipment as indicated, remove existing conductors from existing raceways, and pull new conductors in existing raceways, reconnect existing conductors or furnish and install new conduit and wires.
 - 2. The Contractor shall visit the sites before bidding and carefully examine existing installations so that its proposal will reflect all the Work necessary to provide a complete installation so that the resulting installation will function as required. Include in the bid price all costs of labor and materials necessary to complete installations.
- B. **Installation of Temporary Equipment:**

1. To facilitate continuous operation of existing equipment, temporary equipment shall be provided where indicated. The Contractor shall submit installation and connection details for review and acceptance. Temporary installations shall be provided at no additional cost to the City.
2. All cables, conduits, and fittings used in temporary connections shall not be reused to install permanent connections. Salvaged items shall be returned to the City.

C. Plant Monitoring Power and Control Shutdowns:

1. Existing operations shall be continued during this demolition process. The Contractor shall carefully examine all Work to be done in, on, or adjacent to existing equipment. Work shall be scheduled, subject to the City's approval, to minimize required shutdown time of sites. The Contractor shall submit a written request, including sequence and duration of activities to be performed during shutdown.
2. The Contractor shall perform all switching and safety tagging required for shutdowns or to isolate existing equipment. In no case shall the Contractor begin any Work in, on, or adjacent to existing equipment without written authorization of the Resident Engineer.

D. Modifications to Existing Electrical Facilities:

1. The Contractor shall provide all modifications or alterations to existing electrical facilities required to successfully install and integrate the new electrical equipment. All modifications to existing equipment, panels, or cabinets shall be made in a professional manner with all coatings repaired to match existing. Modifications to existing electrical facilities required for a complete and operating system shall be made at no additional cost to the City. Extreme caution shall be exercised in digging trenches in order not to damage existing underground utilities. Cost of repairs of damages caused during construction shall be the Contractor's responsibility.
2. The Contractor shall verify all available existing circuit breakers in lighting panels for their intended use as required by the drawings. At no additional cost to the City, the Contractor shall verify the available space in substation switchboards to integrate new power circuit breakers.

PART 2 – PRODUCTS (Not Used)

PART 3 -- EXECUTION

3.1 EXAMINATION

- A. The Contractor shall verify equipment locations and delivery routes prior to installation to ensure the equipment will fit in the available space. The drawings do not indicate exact scale or dimension.
- B. Existing raceways that contain space to run wiring may be used where indicated on the drawings. Do not damage existing equipment or wiring. Do not interrupt control or monitoring signals or power. The Contractor shall obtain prior approval from the Engineer or Resident Engineer before pulling wires.

3.2 INSTALLATION

- A. The Contractor shall provide temporary installations adjacent to existing equipment where noted.
- B. After modifying existing equipment, the Contractor shall dismantle temporary installations and restore to original condition.
- C. Perform work neatly. The Contractor shall keep sites clean of accumulation of cartons, trash and debris. Remove trash and debris daily. Vacuum clean cabinets, panels and enclosures installed or modified.
- D. The Contractor shall route and locate equipment items so as not to obstruct access to equipment, personnel walkways, or expose it to potential mechanical damage.
- E. Install items straight and plumb. The Contractor shall exercise care so that like items are mounted the same position, heights and general location. Securely anchor and fasten items.
- F. The Contractor shall locate and install electrical devices to afford maximum safety to personnel making adjustments, manual operations, or replacement of these devices. Locate items to permit them being reached without the use of ladders or without climbing or crawling over or under obstacles such as motors, pumps, piping, and ductwork.
- G. The Contractor shall use bushings for entrances to existing panels, cabinets, or enclosures through drilling and knock-outs.

- H. The Contractor shall tag wires with foreign voltages to indicate source of power.

3.3 GENERAL

- A. The Contractor shall install electrical equipment and material of the size, type, and general routing as shown on the drawings.
- B. The Contractor shall install metallic raceway, fittings, boxes, and cabinets free from direct contact with reinforcing steel.
- C. The Contractor shall provide fasteners, anchor bolts, anchorage items and supports as required for rigid alignment and sized according to size and weight of equipment and thickness of supporting surfaces.
- D. Where aluminum is placed in contact with dissimilar metal or concrete, the Contractor shall separate contact surfaces with gasket, non-absorptive tape, or coating to prevent corrosion.
- E. The Contractor shall make metallic conduit, raceways, and cable trays electrically and mechanically continuous and ground as required. Conduits shall be continuous between outlets, boxes, cabinets, and panels, and shall enter and be secured to each box.
- F. A ground conductor shall be provided in each raceway run.
- G. Not more than one 3-phase circuit or feeder shall be installed in a conduit run.

3.4 TESTING

- A. The Contractor shall perform field-testing to demonstrate correct installation and operation of equipment.
- B. Upon completion of work, the Contractor shall test the electrical system for shorts and grounds and proper phasing. The Engineer will observe the testing.

3.5 CLEANING

- A. Touch up paint surfaces marred during installation. The Contractor shall submit color samples prior to painting. Remove foreign paint from exterior and touch up scratches with same paint as original. Sand, prime, and repaint rusted areas.
- B. Clean and lubricate relay contacts, pushbutton and other control devices installed or modified. Lubricate with CRC 2-26 or other lubricant or cleaning agent specifically designed for this purpose.

- C. At completion of work in any area, the Contractor shall remove all debris and unused materials and equipment and leave all areas broom clean. Where work in carpeted areas results in visible soiling of carpets, clean the affected carpets and restore them to the original condition.

3.6 PROTECTION

- A. The Contractor shall maintain site security.
 - 1. Verify that all cabinets, doors, and gates that were opened during the day are locked when leaving.
 - 2. Do not leave unlocked cabinets unattended.

PART 4 - MEASUREMENT AND PAYMENT

4.1 536/390 ZONE PRESSURE REGULATING STATION RELOCATION, BID ITEM NO. 62:

- A. No measurement shall be made for this item.
- B. 536/390 ZONE PRESSURE REGULATING STATION RELOCATION will be paid at the Contract lump sum amount for 536/390 ZONE PRESSURE REGULATING STATION RELOCATION, which amount will include full compensation for furnishing all labor, materials, equipment, tools, export of excavated material, soil compaction, incidentals and for doing the work including preparation and implementation of the plan, as shown on the drawings and as specified in these specifications and no additional compensation will be allowed.
- C. Payment shall be made upon completion and acceptance of pressure regulating station.

4.2 SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE, BID ITEM NO. 63:

- A. No measurement shall be made for this item.
- B. SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE will be paid at the Contract lump sum amount for SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE, which amount will include full compensation for furnishing all labor, materials, equipment, tools, and incidentals and for doing the work including preparation and implementation of the plan, as shown on the drawings and as specified in these specifications and no additional compensation will be allowed.
- C. Payment shall be made upon completion and acceptance of the sump pump installation.

END OF SECTION

SECTION 16110

RACEWAYS

PART 1 -- GENERAL

1.1 SUMMARY

- A. The section describes the requirements for raceways including the following:
 - 1. Conduit
 - 2. Fittings
 - 3. Miscellaneous Specialty Fittings
 - 4. Raceway Supports
 - 5. Underground Ducts and Manholes
 - 6. Outlet, Junction, and Pull Boxes
 - 7. Wiring Devices
 - 8. Terminal Cabinets
 - 9. Sealants
- B. Reference is made to the following related sections:
 - 1. Conduit identification per Section 16195 - Electrical Identification.
 - 2. Conduit support per Section 16190-Supporting Devices

1.2 SUBMITTALS

- A. See Section 16010 for general submittal requirements for Division 16.

1.3 SYSTEM DESCRIPTION

- A. Size conduit in accordance with the National Electrical Code, but galvanized rigid steel (GRS) conduit shall be no smaller than 3/4 inch and schedule 40 PVC conduit shall be no smaller than 1 inch. Use larger sizes if shown.

- B. Use fittings of the same material and match the raceway.
- C. PVC coated galvanized rigid steel conduit (GRS) shall be used in all exposed and/or above grade locations and within underground vault structures and for all signal wiring. Schedule 40 PVC shall be used for direct buried or concrete encased underground locations for power and control wiring, concrete encased. 24 Vdc discrete and analog signals may occupy the same conduit.

PART 2 -- PRODUCTS

2.1 CONDUIT

- A. General: Raceway shall be manufactured in accordance with UL and ANSI standards and shall bear UL label as applicable.
- B. Galvanized Rigid Steel (GRS) Conduit:
 - 1. Rigid steel conduits and fittings shall be full weight, mild steel, hot-dip galvanized and zinc bichromate coated inside and outside after galvanizing.
 - 2. Each piece of conduit shall be straight, free from blisters and other defects, cut square and taper reamed. Furnish in 10 foot lengths minimum, threaded at each end. Provide couplings at one end and a protective sleeve for the other end.
 - 3. Rigid steel conduit shall be manufactured in accordance with UL Standard No. 6 and ANSI C80.1.
 - 4. Rigid steel conduit shall be manufactured by Triangle PWC, Republic Steel, or equal.
- C. Rigid Nonmetallic Conduit: Rigid nonmetallic conduit shall be Schedule 40 PVC.
 - 1. Nonmetallic conduits and fittings shall be UL listed, sunlight-resistant, and rated for use with 90 degrees C conductors.
 - 2. Use expansion joints as recommended by the manufacturer.
 - 3. Nonmetallic conduits and fittings shall be manufactured by Carlon, Condux, or equal.

- D. Flexible Metallic Conduit: Liquid-tight flexible metallic conduit shall have an extruded PVC covering over the flexible steel conduit. Conduit shall be approved for grounding. For conduit sizes 3/4 inch through 1-1/4 inches, flexible conduits shall have continuous built-in copper ground conductor. Flexible conduit shall be American Brass, Anaconda, Electroflex, or equal. Explosion-proof flexible conduits shall be used for Class I, Div. 1, Group C&D areas.
- E. PVC coated GRS shall be 40 mil coating. Robroy, OCAL, or approved equal.

2.2 FITTINGS

- A. General: Fittings shall comply with the same requirements as the conduit with which they will be used. Fittings having a volume less than 100 cubic inches for use with rigid steel conduit, shall be cast or malleable nonferrous metal. Such fittings larger than one inch shall be "mogul size." Fittings shall be of the gland ring compression type. Use threaded connectors for all rigid metal conduits. Covers of fittings, unless in "dry" locations, shall be closed with gaskets. Surface-mounted cast fittings, housing wiring devices in outdoor and damp locations, shall have mounting lugs.
- B. Insulated Bushings: Insulated bushings shall be molded plastic or malleable iron with insulating ring, similar to O-Z Type A and B, equivalent types by Thomas & Betts, Steel City, Appleton, O-Z/Gedney, or equal.
- C. Insulated Grounding Bushings: Insulated grounding bushings shall be malleable iron with insulating ring and with ground
- D. Erickson Couplings: Erickson couplings shall be used at all points of union between ends of rigid steel conduits which cannot be coupled. Running threads and threadless couplings shall not be used. Couplings shall be 3-piece type such as Appleton Type EC, equivalent types such as manufactured by T & B, Steel City, O-Z/Gedney, or equal.
- E. Liquid-Tight Fittings: Liquid-tight fittings shall be similar to Appleton Type ST, equivalent types such as manufactured by Crouse-Hinds, T & B, O-Z/Gedney, or equal.
- F. Hubs: Hubs for threaded attachment of steel conduit to sheet metal enclosures, where required, shall be similar to Appleton Type HUB, equivalent types such as manufactured by T & B, Myers Scrutite, or equal.
- G. Transition Fittings: Transition fittings to mate steel to PVC conduit, and PVC access fitting, shall be as furnished or recommended by the manufacturer of the PVC conduit.
- H. Sealed Fittings: Sealing fittings are required in conduit runs entering corrosive areas and elsewhere as shown. Sealing fittings shall be Appleton Type EYS, O-Z Type FSK, or equal. Sealing compound shall not be poured in place until electrical installation has

been otherwise accepted.

- I. Expansion Fittings: Expansion fittings shall be installed wherever a raceway crosses a structural expansion joint. Such fittings shall be expansion and deflection type and shall accommodate lateral and transverse movement. Fittings shall be O-Z/Gedney Type "DX," Crouse Hinds "XD," or equal. These fittings are required in metallic and nonmetallic raceway installations. When the installation is in a nonmetallic run, a 3-foot length of rigid conduit shall be used to connect the nonmetallic conduit to the fitting.

2.3 MISCELLANEOUS SPECIALITY FITTINGS

- A. Provide conduit thru-wall seals where conduits pass through exterior concrete or masonry walls below grade. The seals shall consist of a hot dip galvanized steel sealing gland assembly capable of providing a seal around the conduit to withstand 50 feet of water head without leakage. The shell of the seal shall have at least two cast collars at a right angle to the sleeve that is embedded in the concrete. For new structures, provide O-Z/Gedney type WSK, or equal. For cored hole applications in existing structures, provide O-Z/Gedney type CSM, or equal.

2.4 RACEWAY SUPPORTS

See section 16190 for raceway support.

2.5 UNDERGROUND DUCTS AND MANHOLES

- A. General: Where an underground distribution system is required, it shall be comprised of multiple runs of single bore nonmetallic ducts, concrete encased, with steel reinforcing bars, with underground manholes and pullboxes. They shall be rigid Schedule 40 PVC for concrete encasement.

1. Manholes and pullboxes shall be of precast concrete. Concrete construction shall be designed for traffic loading.

Covers shall be traffic type, except as shown otherwise. Manholes and pullbox covers designated as "HV" covers shall be identified as "High Voltage Electric," "P" shall be identified as "Secondary Electric," "C" as "Control" and "S" as "Signal." All covers shall be watertight after installation.

Manholes and pullboxes shall be equipped with pulling-in irons opposite and below each ductway entrance.

Manholes shall have concrete covers with 30-inch diameters lids. All covers

and lids shall be bolted to cast-in-place frames with corrosion resistant hardware. Frames shall be factory-primed; covers shall be cast-iron and shall have pick holes.

2. Manholes and pullboxes shall have cable supports so that each cable is supported at 3-foot intervals within the manhole or pullbox. Cable supports and racks shall be fastened with galvanized bolts and shall be fabricated of fiberglass or galvanized steel. Porcelain insulators for cable racks shall be provided.
3. Manholes and pullboxes shall be Brooks, Quikset, U.S. Precast, or equal. Cast-iron covers shall be by U.S. Foundry, or equal.

2.6 OUTLET, JUNCTION, AND PULL BOXES

- A. General: Outlet, switch, pull and junction boxes for flush-mounting in general purpose locations shall be one-piece, galvanized, pressed steel. Ceiling boxes for flush-mounting in concrete shall be galvanized, pressed steel.
- B. Corrosive Locations: The entire project site shall be considered a corrosive location. Control station, pull and junction boxes, including covers, for installation in corrosive locations shall meet the NEMA 4X requirements and shall be stainless steel and shall be furnished with mounting lugs.

2.7 TERMINAL CABINETS

- A. Provide terminal cabinets as suitable for flush or surface mounting, dry or wet locations, as indicated on the Drawings. Cabinets shall meet the following additional requirements:
 1. Continuous piano hinged door(s) and back panel to mount terminal blocks.

Cabinet boxes shall be constructed of 316 Stainless Steel.
 3. Cabinet trims constructed of sheet steel in accordance with UL standards. Trims for surface mounted panels shall be provided with factory applied prime and finish coats of paint. Trims for flush mounted cabinets shall be provided with factory applied prime coat of paint suitable for field application of finish paint, except as otherwise noted.
 4. Non-metallic or aluminum backboards.
 5. 18 inches in width, 24 inches in height, and 4 inches in depth unless shown otherwise on the Drawings.

6. Provide a minimum of 12 terminals in each cabinet. Provide 25% spare terminals. Terminals shall be Marathon No. 1600, Buchanan No. 218, or equal.

2.8 SEALANTS

- A. Provide non-hardening, UL approved type for wall penetrations and underground ductbank seals.
- B. Provide hard setting, UL approved type for hazardous location seal fittings.

PART 3 – EXECUTION

3.1 GENERAL

- A. Raceways shall be installed as indicated, however, conduit routings shown are diagrammatic. The Contractor shall check location of equipment connections before installing raceways and locate and arrange raceways accordingly. Raceway systems shall be electrically and mechanically complete before conductors are installed. Bends and offsets shall be smooth and symmetrical, and shall be accomplished with tools designed for the purpose intended. Factory elbows shall be used for all 3/4-inch conduit. Bends in larger sizes of metallic conduit shall be accomplished by field bending or by the use of factory elbows. All installations shall be in accordance with the latest edition of the NEC.
- B. Raceways shall be installed in accordance with the following schedule:
 1. Low Voltage Raceway (control, power, data and communications):
 - a. Rigid Schedule 40 PVC shall be used for concrete encased duct in earth.
 - b. PVC coated GRS conduit and fittings shall be used in vaults and all exposed, above ground locations.
 2. Analog Signal Raceways:
 - a. Galvanized rigid steel conduits shall be used for concrete encased duct on earth.
 - b. PVC coated galvanized rigid steel conduits shall be used on exposed installations in general purpose areas.
 - c. PVC coated galvanized rigid steel shall be used on exposed installations in outdoor areas.

- C. Exposed Raceways:
 - 1. Conduits shall be rigidly supported with clamps, hangers, and Unistrut channels.
 - 2. Intervals between supports shall be in accordance with the National Electric Code.
- D. Conduit Terminations: Empty conduit terminations not in manholes or pullboxes shall be plugged. Exposed raceway shall be installed perpendicular or parallel to buildings except where otherwise indicated. Conduit shall be terminated with flush couplings at exposed concrete surfaces. Conduit stubbed up for floor-standing equipment shall be placed in accordance with approved shop drawings. Metallic raceways installed below-grade or in outdoor locations and in concrete shall be made up with a conductive waterproof compound applied to threaded joints. Compound shall be Zinc Clads Primer Coatings No. B69A45, HTL-4 by Crouse-Hinds, Kopr Shield by Thomas & Betts, or equal.
- E. Install metallic raceway, fittings, boxes, and cabinets free from direct contact with reinforcing steel.
- F. Provide fasteners, anchor bolts, anchorage items and supports as required for rigid alignment and sized according to size and weight of equipment and thickness of supporting surfaces.
- G. Make metallic conduit, raceways, and cable trays electrically and mechanically continuous and ground as required. Conduits shall be continuous between outlets, boxes, cabinets, and panels, and shall enter and be secured to each box.
- H. Provide ground conductor in each raceway run.

3.2 CONDUIT INSTALLATION

- A. Conduit may be cast integral with horizontal and vertical concrete slabs, providing one-inch clearance is maintained between conduit surface and concrete surface. If said clearance cannot be maintained, the conduit shall be installed exposed below elevated slabs; provided, that in the case of slabs on grade, conduit shall be installed below the slab. Maximum size of conduit that can be cast in slab shall be 1-1/2 inches.

- B. Nonmetallic conduit may be cast integral with horizontal slabs with placement criteria stated above. Non-metallic conduit may be run beneath structures or slabs on grade, without concrete encasement. In these instances conduit shall be placed at least 12 inches below the bottom of the structure or slab. Nonmetallic conduit may be buried 24 inches minimum below grade, with a 3-inch concrete cover, in open areas or where otherwise not protected by concrete slab or structures. Top of concrete cover shall be colored red. Nonmetallic conduit shall be permitted only as required by the Specifications and in concealed locations as described above.
- C. Where a run of concealed PVC conduit becomes exposed, a transition to rigid steel conduit is required. Such transition shall be accomplished by means of a factory elbow or a minimum 3-foot length of PVC coated rigid steel conduit, either terminating at the exposed concrete surface with a flush coupling. Piercing of concrete walls by nonmetallic runs shall be accomplished by means of a short steel nipple terminating with flush couplings.
- D. Flexible conduit shall be used at dry locations for the connection of equipment such as motors, transformers, instruments, valves, or pressure switches subject to vibration or movement during normal operation or servicing. Flexible conduit may be used in lengths required for the connection of recessed lighting fixtures; otherwise the maximum length of flexible conduit shall be 18 inches.
- E. In other than dry locations, connections shall be made using flexible liquid-tight conduit. Equipment subject to vibration or movement which is normally provided with wiring leads, such as solenoid valves, shall be installed with a cast junction box for the make-up of connections. Flexible conduits shall be as manufactured by American Brass, Cablec, Electroflex, or equal.
- F. Galvanized Rigid Steel Conduit (GRS): Treat field cut threads with a liquid galvanized solution or a conductive rust inhibitor that will maintain ground continuity before installing locknuts, bushings, or other fittings. Where required use UL approve conduit unions. Do not use split couplings or running threads in lieu of unions.
- G. Flexible Metallic Conduit (liquid tight): Use only for terminations to vibrating or moving equipment such as motors or transformers. Connectors shall be liquid tight, stainless steel, or bronze with insulated throats.
- H. Rigid nonmetallic conduit: All exposed bends shall use rigid steel conduit. All risers shall use rigid steel conduit. Do not use PVC conduit for routing of analog or communication signal circuits.
- I. Earth Buried Conduits
 - 1. For conduits buried in earth provide minimum 30 inches of cover and minimum of one foot clearance between other utility crossings and parallel runs. Maintain a grade of at least four inches per 100 feet either from one

manhole or pull box to the next or from a high point between them. Drain conduits away from building, if not possible provide watertight seal at building.

2. Provide detectable warning tape approximately 18 inches above and directly over centerline of buried conduit.

J. Conduit Damage Correction

Repair cuts, nicks, and abrasions or replace damaged conduit as directed.

K. Conduit Penetrations

1. Seal all raceways entering structures at the first box or outlet with oakum or suitable plastic expandable compound to prevent the entrance into the structure of gases, liquids, or rodents.
2. Dry pack with nonshrink grout around raceways that penetrate concrete walls, floors, or ceilings aboveground, or use one of the methods indicated for underground penetrations.
3. Where an underground conduit enters a structure through a concrete roof or a membrane waterproofed wall or floor, provide an acceptable, malleable iron, watertight, entrance sealing device. When there is no raceway concrete encasement, provide such device having a gland type sealing assembly at each end with pressure bushings that may be tightened at any time. When there is raceway concrete encasement indicated, provide such a device with a gland type sealing assembly on the accessible side. Securely anchor all such devices into the masonry construction with one or more integral flanges. Secure membrane waterproofing to such devices in a permanently watertight manner.
4. Where an underground raceway without concrete encasement enters a structure through a nonwaterproofed wall or floor, install a sleeve made of Schedule 40 galvanized pipe. Fill the space between the conduit and sleeve with a suitable plastic expandable compound, or an oakum and lead joint, on each side of the wall or floor in such a manner as to prevent entrance of moisture. A watertight entrance sealing device may be used in lieu of the sleeve.
5. Make concealed penetrations for conduits not more than 1/4 inch larger than the diameter of the conduit. Make penetrations through walls, ceiling, and floors other than concrete for exposed conduits not more than 1/4 inch larger than the diameter of the conduit. Fill void around conduit with caulking compound and finish surface same as wall, ceiling, or floor.

6. Where a conduit enters through a concrete non-waterproofed wall, floor, or ceiling, provide a galvanized steel sleeve, Schedule 80, and fill the space between the conduit and sleeve with plastic expandable compound or an oakum and lead joint. If the sleeve is not placed with the concrete, drill hole not less than 1/2-inch or more than one inch larger than sleeve, center sleeve, and grout sleeve total depth of penetrated concrete with non-shrink grout, polyurethane, or silicone sealant.
7. Where conduits penetrate walls, install junction box on other side of penetration. Separate 120 Vac boxes from low, dc voltage circuits.

3.5 UNDERGROUND DUCTS AND MANHOLES INSTALLATION

- A. Duct Bank Installation: The underground concrete encased duct bank shall be installed in accordance with the criteria below:
 1. Duct shall be assembled using high impact nonmetallic spacers and saddles to provide conduits with vertical and horizontal separation. Plastic spacers shall be set every 5 feet.
 2. The duct shall be laid on a grade line of at least 4 inches per 100 feet, sloping towards pullboxes or manholes. Duct shall be installed and pullbox and manhole depths adjusted so that the top of the concrete envelope is a minimum of 24 inches below grade.
 3. Changes in direction of the duct envelope by more than 10 degrees horizontally or vertically shall be accomplished using bends with a minimum radius 24 times the duct diameter.
 4. Couplings shall be staggered at least 6 inches vertically. Bottom of trench shall be of select backfill or sand. The duct array shall be anchored every 4 feet to prevent movement during placement of the concrete envelope.
 5. Each bore of the completed duct bank shall be cleaned by drawing through it a standard flexible mandrel one foot long and 1/4-inch smaller than the nominal size of the duct through which the mandrel will be drawn. After passing of the mandrel, draw a wire brush and swab through.
 6. A raceway, in the duct envelope, which does not require conductors, shall have a 1/8-inch polypropylene pull cord installed throughout the entire length of the raceway.
- B. Duct Entrances: Duct entrances shall be grouted smooth; duct for primary and secondary cables shall be terminated with flush end bells. Sections of pre-fabricated manholes and pullboxes shall be assembled with waterproof mastic and shall be set

on a bed of gravel as recommended by the manufacturer or as required by field conditions.

- C. Duct Bank Markers: Duct bank markers shall be installed every 200 feet along run of duct bank, at changes in horizontal direction of duct bank, and at ends of duct bank. Concrete markers, 6 by 6 inches square and one foot long, shall be set 2 inches above finish grade. The letter "D" and arrow set in the concrete shall be facing in the direction of the duct alignment.
- D. Watertight Penetrations: Duct bank penetration through walls of manholes or pullboxes, and on building walls below grade shall be watertight.
- E. Trench Backfill: Trenches containing duct banks shall be filled with select backfill with no large rocks which could damage the duct.
- F. Concrete Encased Duct Banks: Concrete encased duct bank shall terminate at building foundations. When duct enters the building on a concrete slab on grade, duct shall not be encased, but shall transition to rigid steel PVC-coated conduits on all stub-ups.

3.4 TERMINAL CABINETS INSTALLATION

- A. Provide terminal cabinets where shown on the Drawings and in accessible locations with working space in front of and around the installation.
- B. Cabinets shall be set plumb at an elevation that will cause the maximum circuit breaker height to be less than 66 inches above grade. Top edge of trim of adjacent panels shall be at the same height. Panels which are indicated as flush mounted shall be set so cabinet is flushed and serves as a "ground" for plaster application.
- C. All factory wire connections shall be made at shipping splits, and all field wiring and grounding connections shall be made after the assemblies are anchored.
- D. Identify each circuit and conductor.
- E. Provide terminals and connectors to match the cable being terminated.

3.5 OUTLET, JUNCTION, AND PULL BOXES INSTALLATION

- A. For boxes mounted on steel, concrete, and masonry surfaces provide minimum ¼-inch spacer to hold box away from surface.
- B. Sizing: Pull and junction boxes shall be sized in accordance with the requirements of the NEC.

- C. Outlet Boxes: Outlet boxes shall be used as junction boxes wherever possible. Where separate pullboxes are required, they shall have screw covers.
- D. Requirements: Pullboxes shall be installed when conduit run contains more than three 90-degree bends and runs exceed 200 feet.
- E. Opening in terminal panels, outlet and junction boxes shall be by means of welded bosses, standard knockouts, or shall be sawed, drilled, or punched with tools specially made for the purpose. The use of a cutting torch is prohibited. Unused openings shall be plugged per the NEC.
- F. Remove debris including dust, dirt, wire clippings and insulation from interior of boxes. Replace damaged boxes or boxes with open circuit holes.
- G. Where boxes are shown on each side of a common wall do not mount back-to-back but offset horizontally minimum of six inches.
- H. For wet or damp indoor or outdoor locations use boxes of rust and corrosion resistant NEMA 4X, with at least 5 1/2 full threads for each (bossed) conduit opening. Boxes to be suitable for flush or surface mounting as required with drilled external, cast mounting extensions (bossed to provide at least 1/8" between back of box and mounting surface for drainage). Box covers shall be hinged or cap screw retained as required, of the same material as the box and provided with stainless steel (rust proof) hardware. Indoor location may use boxes constructed of stainless steel or non-metallic. Outdoor boxes shall be stainless steel.
- I. For underground locations use boxes constructed of reinforced concrete cast-in-place or pre-fabricated as shown on the Drawings.

PART 4 - MEASUREMENT AND PAYMENT

4.1 536/390 ZONE PRESSURE REGULATING STATION RELOCATION, BID ITEM NO. 62:

- A. No measurement shall be made for this item.
- B. 536/390 ZONE PRESSURE REGULATING STATION RELOCATION will be paid at the Contract lump sum amount for 536/390 ZONE PRESSURE REGULATING STATION RELOCATION, which amount will include full compensation for furnishing all labor, materials, equipment, tools, export of excavated material, soil compaction, incidentals and for doing the work including preparation and implementation of the plan, as shown on the drawings and as specified in these specifications and no additional compensation will be allowed.
- C. Payment shall be made upon completion and acceptance of pressure regulating station.

4.2 SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE, BID ITEM NO. 63:

- A. No measurement shall be made for this item.
- B. SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE will be paid at the Contract lump sum amount for SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE, which amount will include full compensation for furnishing all labor, materials, equipment, tools, and incidentals and for doing the work including preparation and implementation of the plan, as shown on the drawings and as specified in these specifications and no additional compensation will be allowed.
- C. Payment shall be made upon completion and acceptance of the sump pump installation.

END OF SECTION

SECTION 16120 –

WIRES AND CABLES

PART 1 -- GENERAL

1.1 SUMMARY

- A. This section describes requirements for power, control, and instrumentation wiring including the following:
 - 1. 600 volt and below power cable.
 - 2. 600 volt and below control cable.
 - 3. Shielded signal instrument cable.
 - 4. Wire terminations, splices, and Connectors.
- B. Reference is made to the following related sections:
 - 1. Conductor identification per Section 16195 - Electrical Identification.
 - 2. Installation in raceways per Section 16110 - Raceways.

1.2 SUBMITTAL

- A. In addition to the general submittal requirement in section 16010, include the following in the submittal for this section:
 - 1. Twelve-inch length of wire and cable with tag from coils or reel from which samples are taken. The sample shall show manufacturer, coil or reel number from which sample was taken, insulation type and ratings, conductor AWG, and voltage class of cable.
 - 2. Cable test procedures and methods.
 - 3. Cable test results and certification.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Deliver wire and cable in unbroken package or reels that bear the manufacturer name, the dates of manufacture, wire size, and wire type.

PART 2 -- PRODUCTS

2.1 GENERAL

- A. Provide lightning and transient surge protection on each end of the radio coax cable.

2.2 MATERIALS

- A. **Single Conductor Power Cable.** Single conductor power cable shall be 12 AWG minimum. Conductors shall be copper, stranded, 600-volt, THHN/THWN insulation, and shall be UL listed.
- B. **Single conductor Control Cable.** Single conductor control cable shall be 14 AWG minimum. Conductors shall be copper, stranded, with 600-volt, THHN/THWN insulation, and shall be UL listed.
- C. **Multiconductor Control Cable.** Multiconductor control cable shall be 14 AWG with copper conductors 600 volt, THHN/THWN insulation, and overall PVC jacket applied over tape wrapped cable core. Cable shall be rated type TC and shall be UL listed. Cable shall be rated 90 C dry, 75 C wet. Conductors shall be identified per ICEA S-61-402 Appendix K, Method 1 or Method 3. White or green conductors shall not be provided.
- D. **Single Shielded Pair or Triad.** Conductors shall be 16 AWG minimum. Cable shall have 300 volt insulation. Wires shall have uniform twists with a minimum of 6 twists per foot. Each pair or triad shall be provided with a continuous foil or metalized plastic shield providing 100 percent coverage. Each pair or triad shall contain a tinned copper drain wire in continuous contact with the shield. Each pair shall have a black and white wire, each triad shall have a black, white, and red wire. Insulated conductors shall meet the requirements of UL 62 for type TFN. Assembly jacket shall meet the requirements of UL 1277. Cable shall meet the vertical flame test requirements of UL 1277 and shall be rated type TC and shall be UL listed.
- E. **Multiconductor shielded pair or triad.** Conductors shall be 18 AWG minimum. Wires shall have uniform twists with a minimum of 6 twists per foot. Each pair or triad and cable assembly shall be provided with a continuous foil or metalized plastic shield providing 100 percent coverage and total shield isolation from all other pair or triad shields. Each pair shall have a black and white wire, each triad shall have a black, white, and red wire. Each pair or triad shall contain a tinned copper drain wire in continuous contact with the shield. Insulated conductors shall meet the requirements of UL 62 for type TFN. Assembly jacket shall meet the requirements of UL 1277. Cable shall meet the vertical flame test requirements of UL 1277 and shall be rated type TC and shall be UL listed.
- F. **Ground Cable.** All ground cable shall be in conformance with specification section 16450-Grounding. Ground cables shall be bare or green insulated, copper, 12 AWG minimum. Insulated cable shall meet the requirements for Single Conductor Power

Cable above.

- G. The same manufacturer shall manufacture each type of cable listed above, multiple manufacturers for the same type of cable shall not be allowed.

2.3 COLOR CODING

- A. Provide color coding throughout the entire network for service, feeder, branch, control, and low energy signal circuit conductors. Color coding of conductors 10 AWG and smaller shall have factory impregnated color throughout its entire length. Conductors No. 8 AWG and larger gauge may be marked with color coding tape a minimum of 0.004 inch in thickness. Color shall be green for grounding conductors, and white or gray for neutrals. The color of conductors for different voltage systems shall be as follows:

SYSTEM	PHASE A	PHASE B	PHASE C	NEUTRAL	GROUND
120/240 one phase	black	red	---	white	green
208/120 three phase	black	red	blue	white	green
480/277 three phase	brown	orange	yellow	gray	green
Control and low energy	red	---	---	white	green

2.4 WIRE CONNECTIONS AND CONNECTING DEVICES

- A. Electrical Terminal and Splice Connectors
 - 1. The splicing of conductors is not permitted. Provide continuous conductor runs.
 - 2. For terminating conductors from #22 through #10 AWG use compression type connectors with barrels and locking spade type terminals. Conductor entry and crimp area shall be insulated with PVC insulation. Performance, construction, and materials shall be in conformance with UL standards for wire connectors and rated for 600 volts and 105 degrees Celsius. Connectors shall be manufactured from high conductivity copper and entirely tin-plated. Terminal barrels shall be brazed seam or seamless construction serrated on the inside surface and have a chamfered funnel entry to prevent strand fold-back.
 - 3. For terminating conductors #8 AWG and larger use high pressure compression type or set screw type lugs. Lugs shall be manufactured from high conductivity copper and entirely tin plated with a current carrying capacity equal to the conductors for which they are rated and must also meet UL requirements. All

lugs above 4/0 AWG shall be 2 hole lugs with NEMA spacing, rated for operation through 35 kV, and be of closed end construction to exclude moisture migration into the cable conductor.

4. Use solderless/re-usable lugs only when furnished with equipment such as control panels, furnished by others, where specification of compression type lugs is beyond the Contractor's control. Lugs must be manufactured to NEMA standards, with standard number and spacing of holes and set screws. Coat wires with electrical joint compound, T & B Kopr-Shield, Penn-Union Coal-Aid, or equal before being bolted into the connector.

PART 3 -- EXECUTION

3.1 GENERAL

- A. Run all wires and cables in raceways unless otherwise noted.
- B. Conductors shall not be pulled into raceway until:
 1. Raceway system is complete and has been inspected and accepted by the Engineer.
 2. Plastering and concrete have been completed in affected areas.
 3. Raceway system has been freed of moisture and debris.
- C. Wire in panels, cabinets, and gutters shall be neatly grouped using nylon tie straps and shall be fanned out to terminate.
- D. For multiconductor or manufactures supplied cable not installed in raceways, terminate cable sheaths in watertight connectors designed for the specific cable and application.
- E. Conductors of No. 1 size and smaller shall be hand pulled. Pull conductors without exceeding manufacturer's recommendation for maximum pulling tension. Protect conductor insulation jacket at all times from kinks, scrapes, punctures, and other damage. Replace damaged conductors. Use lubricating compound to reduce pulling force. Use lubricating compound that is UL listed and compatible with the conductor-insulated jacket and with the raceway. The use of petroleum or grease based lubricants is prohibited.
- F. Support conductors in vertical risers with woven grips to prevent loading on conductor connectors.
- G. In conduits entering buildings or from areas where temperature change may cause

condensation or moisture, seal between conductors and conduit after conductors are in place.

- H. When using color-coding tape apply with overlapping turns for a minimum length of two inches starting two inches back from the termination point.
- I. Provide full-length ground conductor in all conduits.
- J. Leave a minimum of six inches of free conductor at each connected outlet and a minimum of nine inches at unconnected outlets.

3.2 APPLICATION AND USE OF DIFFERENT CABLE TYPES

- A. **Single Conductor Power Cable.** Single conductor power cable shall be used for all ac power feeders and branch circuits.
- B. **Single Conductor Control Cable.** Single conductor or multiconductor control cable can be used interchangeably for all discrete control signals.
- C. **Multiconductor Control Cable.** Single conductor or multiconductor control cable can be used interchangeably for all discrete control signals.
- D. **Single Shielded Pair or Triad.** Single shielded pair or triad conductors or multiconductor shielded cables can be used interchangeably on analog signal lines of less than 24 volts.
- E. **Multiconductor shielded pair or triad.** Single shielded pair or triad conductors or multiconductor shielded cables can be used interchangeably on analog signal lines of less than 24 volts.
- F. **Ground Cable.** Use ground cable for all equipment ground and earth ground connections.

3.3 SPLICING AND TERMINATION

- A. Make all splices in pull or junction boxes or other approved enclosure. Do not pull splices into conduit. Keep splices to a minimum and in no case more frequent than 300 feet. Insulate all splices to protect conductors from entry of moisture and or contaminants and to provide insulation levels equal to the conductor insulation.
- B. Make all wire and cable terminations in UL approved lugs for the application.
- C. Connect circuit conductors of the same color to the same phase throughout the installation.
- D. Insulate connections/splices with a smooth even contour with a conformable 7 mil

thick vinyl plastic insulating tape which can be applied under all weather conditions and is designed to perform in a continuous temperate environment up to 105 degrees Celsius. Use tape with resistance to abrasion, moisture, alkali's, acids, corrosion, and varying weather conditions (including sunlight) equal to Scotch 33+. Apply tape in conformance with manufacturer's recommendations and in addition, in successive half-lapped layers with sufficient tension to reduce its width to 5/8 of its original width. Do not stretch the last inch of wrap.

- E. First wrap connections or splices with irregular shapes or sharp edges protruding with 30 mil rubber tape to smooth the contour of the joint before being insulated with 33+ insulating tape specified in the previous paragraph.
 - 1. Apply the rubber tape in successive, half-lapped wound layers, highly elongated to eliminate voids, and in accordance with other manufacturer's recommendations on installation.
 - 2. Use rubber tape which is high voltage (69 kV) corona-resistant based on self-fusing ethylene propylene rubber and capable of operation at 130 degrees Celsius under emergency conditions. The tape must be capable of being applied in either the stretched or unstretched condition without any loss in either physical or electrical properties. The tape must not split, crack, slip, or flag when exposed to various environments. The tape must be compatible with all synthetic cable insulation. The tape must have a dissipation factor of less than 5 percent at 130 degrees Celsius, be non-vulcanizing, and have a shelf life of at least 5 years. The rubber tape shall be equal to Scotch 23 or 130C electrical splicing tape.
- F. Make splices made in wet or damp locations or below grade with watertight with special kits made for the application and compatible with types of cables employed.
- G. Make connections to lugs and bus bars, with corrosion resistant stainless steel bolts having non-magnetic properties with matching nuts, and a Belleville spring washer (stainless steel) to maintain connection integrity. Torque connections to the specified limits. Prior to bolting up the connection, brush electrical joint compound on the contact faces of the electrical joint.

3.4 SEPARATION OF CONDUCTORS

- A. Ensure that analog signals in one cable or conduit are of the same magnitude. The following are the different signal magnitudes:
 - 1. 0 to 100 mV
 - 2. 101 mV to 5 V
 - 3. 6 V to 75 V

- B. Run 24 Vdc discrete and analog signals in separate conduits from 115 Vac discrete signals and wiring.
- C. Neatly arrange wiring with terminations located directly opposite terminals. Leave wire loops not less than 6 inches long in each outlet box. Tape frayed terminals and exposed wires.

3.5 SPARE WIRES

- A. Notify the Engineer of any instance in which the spare conductor quantity cannot be installed. Tape off all spare conductors in the originating field junction boxes. Terminate and label in terminal boxes. Include all spare wires in conduit and wire schedules.

3.6 TESTING

- A. Cable assembly and testing shall comply with applicable requirement ICEA Publication No. S-68-516 and other relevant ICEA publications. Field tests shall be performed by a certified test organization acceptable to the cable manufacturer.
- B. All wiring shall be tested for continuity, polarity, undesirable ground, and origination. Test wiring for continuity using an ohmmeter. Replace any conductor or cable where the measured resistance exceeds the calculated resistance based on conductor size and length by more than 5 % unless otherwise directed by the engineer.
- C. Before terminating conductors test all conductors between phases and phase to ground for grounds and leakage between individual conductors using a megger capable of producing voltages of at least 500 volts for 300 volt insulation levels and 1000 volts for 600 volt insulation levels. If any conductor tested indicates resistance between conductors or between the conductor and ground of less than 10 megohms, replace the failed wire or cable unless otherwise directed by the engineer.
- D. Cables failing in the test will be replaced with new cable or repaired. Such kind of repair methods shall be as recommended by the cable manufacturer and shall be performed by persons qualified by the industry.
- E. Submit test results to the Engineer and certify all conductors have passed the required tests. Correct problems noted during these tests.

PART 4 - MEASUREMENT AND PAYMENT

4.1 536/390 ZONE PRESSURE REGULATING STATION RELOCATION, BID ITEM NO. 62:

- A. No measurement shall be made for this item.

- B. 536/390 ZONE PRESSURE REGULATING STATION RELOCATION will be paid at the Contract lump sum amount for 536/390 ZONE PRESSURE REGULATING STATION RELOCATION, which amount will include full compensation for furnishing all labor, materials, equipment, tools, export of excavated material, soil compaction, incidentals and for doing the work including preparation and implementation of the plan, as shown on the drawings and as specified in these specifications and no additional compensation will be allowed.
- C. Payment shall be made upon completion and acceptance of pressure regulating station.

4.2 SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE, BID ITEM NO. 63:

- A. No measurement shall be made for this item.
- B. SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE will be paid at the Contract lump sum amount for SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE, which amount will include full compensation for furnishing all labor, materials, equipment, tools, and incidentals and for doing the work including preparation and implementation of the plan, as shown on the drawings and as specified in these specifications and no additional compensation will be allowed.
- C. Payment shall be made upon completion and acceptance of the sump pump installation.

END OF SECTION

SECTION 16190

SUPPORTING DEVICES

PART 1 --GENERAL

1.1 SUMMARY

- A. This section describes the requirements of supporting devices for equipment, antennas, conduit, and cables.
- B. A registered Civil Engineer in the State of California is required to prepare calculation that show equipment anchorage and support structure requirements will comply with the UBC (latest edition), City Seismic requirements, and wind loading requirements for antenna masts.

1.2 SUBMITTALS

- A. Include the following information for each site in the submittal for this section:
 - 1. Detail drawings of parts and assembly.
 - 2. Descriptive data sheets, literature, bulletins, and related data annotated as necessary to describe the antenna tower or pole and related equipment to be furnished.
 - 3. Wind Zone information.
 - 4. Specific arrangement, dimension drawings, erection and assembly drawings for the antenna tower or pole supplied. This shall include all engineering drawings and calculations for the antenna tower or pole, pier foundation, anchor bolts, etc., as prepared by a registered Professional Engineer.

1.3 SITE CONDITIONS

- A. Determine to your own satisfaction the location and nature of all surface and subsurface obstacles and the soils and water conditions which will be encountered during the construction.

PART 2 --PRODUCTS

2.01 MATERIALS

- A. Do not use expansive screw anchors, shields, or other fastening items containing lead or other material that might loosen or melt under fire conditions. Do not use power-actuated fasteners and devices.
- B. Equipment or enclosure support devices.
 - 1. Mounting brackets and support channels shall be stainless steel, unless otherwise specified on the drawings. Fasteners used to mount equipment outdoors shall be stainless steel and designed for use with the support channels.
 - 2. Provide supporting devices manufactured by Unistrut, Bee-Line, Kindorf, or equal.
- C. Raceway Supports
 - 1. Except as noted herein, supports and hangers shall be stainless steel.
 - 2. Fasteners shall be expansion bolts or inserts for concrete, toggle bolts for hollow masonry or frame construction and preset inserts for pre-stressed concrete.
 - 3. For conduits supported on surface, provide straps with holes for one or two fasteners and shaped to fit conduit size.
 - 4. At structural steel members support raceway with hot dip galvanized beam clamps. Drilling or welding may be used only where indicated on the Drawings.

PART 3 --EXECUTION

3.1 GENERAL

- A. Install fastenings and supports as required for each type of equipment, cables and conduits, and to manufacturer's installation recommendations.
- B. Provide surface mounted supports for 2 or more conduits on channels at a maximum of 3 foot intervals. Provide metal brackets, frames, hangers, clamps and related types of support structures as required to support conduit and cable runs. Do not use wire lashing or perforated strap to support or secure raceways or cables.

- C. Provide adequate support for raceways, conduit and cables dropped vertically to equipment where there is no wall support.
- D. Do not use supports of equipment installed for other trades for conduit or cable support except with permission of the Resident Engineer.
- E. Install inert spacers for aluminum support brackets or channels directly in contact with concrete to reduce chemical reaction between support and concrete.

3.2 CONTROL PANELS

- A. The Contractor shall be responsible for the following installation work:
 - 1. Mounting of the RCP Panel, PIT Enclosure, and the FIT Enclosure.
- B. Provide concrete foundation as required indicated on drawings and certified by a California registered Professional Engineer.

3.3 RACEWAY SUPPORTS

- A. Support raceway at intervals and at locations as required by the NEC. Do not use perforated straps or plumbers tape for conduit supports. Independently support raceways from the structure.
- B. Install exposed raceways on walls below grade or in damp, wet, or corrosive locations with standoff brackets providing a minimum of 1/4 inch air space between the raceway and the mounting surface.
- C. Where raceway may be affected by dissimilar movements of the supporting structures or medium, provide flexible or expansion devices.

PART 4 – MEASUREMENT AND PAYMENT

4.1 536/390 ZONE PRESSURE REGULATING STATION RELOCATION, BID ITEM NO. 62:

- A. No measurement shall be made for this item.
- B. 536/390 ZONE PRESSURE REGULATING STATION RELOCATION will be paid at the Contract lump sum amount for 536/390 ZONE PRESSURE REGULATING STATION RELOCATION, which amount will include full compensation for furnishing all labor, materials, equipment, tools, export of excavated material, soil compaction, incidentals and for doing the work including preparation and implementation of the plan, as shown on the drawings and as specified in these specifications and no additional compensation will be allowed.

- C. Payment shall be made upon completion and acceptance of pressure regulating station.

4.2 SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE, BID ITEM NO. 63:

- A. No measurement shall be made for this item.
- B. SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE will be paid at the Contract lump sum amount for SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE, which amount will include full compensation for furnishing all labor, materials, equipment, tools, and incidentals and for doing the work including preparation and implementation of the plan, as shown on the drawings and as specified in these specifications and no additional compensation will be allowed.
- C. Payment shall be made upon completion and acceptance of the sump pump installation.

END OF SECTION

SECTION 16195

ELECTRICAL IDENTIFICATION

PART 1 --GENERAL

1.1 SUMMARY

- A. This section describes the requirements for equipment identification tags.
- B. Identify and label each raceway, piece of equipment, and conductor.
- C. Develop a schedule for labels showing the legend of each as shown on the Drawings. In the absence of specific data on the Drawings, develop legends from the nature of the service or system. Arrange the schedule to produce a legible comprehensive identification system.

1.2 SUBMITTALS

- A. Submit label schedule.

PART 2 --PRODUCTS

2.1 EQUIPMENT IDENTIFICATION

- A. Use Micarta black letters on a white background unless otherwise specified for a specific application. Electrical enclosure nameplates shall be a minimum of 1 inch high by 3 inches wide with 0.125 inch letters. Engrave nameplates as shown on the Drawings or as approved on the submittal.
- B. Nameplates shall be fastened securely by fasteners of stainless steel, screwed into inserts or tapped holes as required.
- C. Provide labels manufactured by the Brady Identification Systems Division, Safety Sign Company, Westline Products Company, or equal.

2.2 RACEWAY IDENTIFICATION

- A. Provide labels manufactured by None Such Enterprises, or equal.
- B. Identification tape for protection of buried electrical installation shall be a 6-inch wide red polyethylene tape imprinted "Caution - Electric Utilities Below".

2.3 CONDUCTOR IDENTIFICATION

- A. Provide wire markers that are clip sleeve or sleeve type, made of PVC, nylon, or delrin, white in color, with black letters impressed in the material. On wire too large for the standard sleeve sizes, provide sleeve type markers inserted on a cable tie and the tie then installed around the wire.
- B. Acceptable wire markers are Tyton Corporation Tygrup and Ty-Clip, Brady Clip-Sleeve, Panduit and Omnigrip, or equal.

PART 3 --EXECUTION

3.1 GENERAL

- A. Furnish and install nameplates on all field mounted devices, equipment and instruments supplied whether mounted inside an enclosure or field mounted. Securely fasten nameplates to each device or to a conduit clamp located near the device with 16 gage stainless steel wire or nylon self-locking straps.
- B. Indicate the device's name (i.e., BRM4201PI or ELLC300QA) based on the input/output point listing.

3.2 RACEWAY IDENTIFICATION

- A. Identify exposed raceways and raceways concealed above removable ceilings at each end within 12 inches of point to termination.
- B. Provide factory manufactured identifying labels with colored paper, machine printed with an identifying legend laminated between two sheets of vinylite plastic formed to completely encircle the raceway. Match the sizes of the labels with the raceway on which they are to be applied. Install labels in accordance with manufacturer's instructions.
- C. For legends to be used in the labels, indicate the system voltage and what it serves or type of service. The legend shall appear in a minimum of one inch high white letters on a black background for raceways 2-1/2 inch and smaller diameter and two inch high letters for raceways larger than 2-1/2 inch diameter.
- D. Install identification tape directly above buried raceway; Install tape 8 inches below grade and parallel with raceway to be protected.

3.3 EQUIPMENT IDENTIFICATION

- A. All panels and devices powered from an external source shall be provided with a nameplate which indicates the power source and circuit number for the panel or device.
- B. Label feeder units in panelboards, switchboards, disconnects, and motor control centers to identify the enclosure or piece of equipment and to indicate the motor device, outlet, or circuit controlled or monitored. Attach nameplates to inside surfaces with adhesive and to the outside surface with round head, self-tapping stainless steel screws. Nameplates shall be two-color laminated plastic not less than 1/16 inch thick, machine engraved to show white letters not less than 1/4 inch high on a black background.
- C. Type branch circuits in lighting panelboards on a card suitable for the card frame furnished with the panel. The card shall bear the panel designation listed on the Drawings where this information is given, as well as indicate what each circuit controls.

3.4 CONDUCTOR IDENTIFICATION

- A. Identify power conductors terminating in panelboards, cabinets, motor control centers, and special service outlets at each end and in intervening junction and pull boxes. Where feeder conductors pass through a common box, tag the feeder to indicate the electrical characteristics, circuit number and panelboard designation. Locate labels near the conductor ends for terminals and on exposed portions of conductor within pull and junction boxes.
- B. Identify control wiring and instrument power and signal wiring at each end of each wire by a number conforming with the following:
 - 1. Base wire numbers on the instrument or equipment name shown on the Drawings, the I/O list, or stated in the Specifications. If cables are multi-conductor, number the individual wires. Where it is impractical to maintain the same wire numbers throughout, install a terminal block at the junction of the different numbered wires. On each side of the terminal block identify each associated wire number with a label either typed or written in with permanent ink.
 - 2. Tag wires at both ends with the same notation.
- C. All conduction identification numbers shall show on shop drawings.

PART 4 – MEASUREMENT AND PAYMENT

4.1 536/390 ZONE PRESSURE REGULATING STATION RELOCATION, BID ITEM NO. 62:

- A. No measurement shall be made for this item.
- B. 536/390 ZONE PRESSURE REGULATING STATION RELOCATION will be paid at the Contract lump sum amount for 536/390 ZONE PRESSURE REGULATING STATION RELOCATION, which amount will include full compensation for furnishing all labor, materials, equipment, tools, export of excavated material, soil compaction, incidentals and for doing the work including preparation and implementation of the plan, as shown on the drawings and as specified in these specifications and no additional compensation will be allowed.
- C. Payment shall be made upon completion and acceptance of pressure regulating station.

4.2 SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE, BID ITEM NO. 63:

- A. SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE will be paid at the Contract lump sum amount for SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE, which amount will include full compensation for furnishing all labor, materials, equipment, tools, and incidentals and for doing the work No measurement shall be made for this item.
- B. Including preparation and implementation of the plan, as shown on the drawings and as specified in these specifications and no additional compensation will be allowed.
- C. Payment shall be made upon completion and acceptance of the sump pump installation.

END OF SECTION

SECTION 16421

UTILITY SERVICE ENTRANCE

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Arrangement with Utility Companies for permanent electric service.
- B. Underground service entrance.
- C. Metering equipment.

1.2 RELATED SECTIONS

- A. Section 16110 - Raceways.
- B. Section 16450 - Grounding.

1.3 REFERENCES

- A. ANSI/NFPA 70 - National Electrical Code.

1.4 SYSTEM DESCRIPTION

- A. System Characteristics: 120/240 volts, single phase, three-wire, 60 Hertz.

1.5 SUBMITTALS

- A. Submit under provisions of the General Requirements.

1.6 QUALITY ASSURANCE

- A. Perform Work in accordance with Utility Company written requirements.
- B. Maintain one copy of each document on site.

1.7 REGULATORY REQUIREMENTS

- A. Conform to requirements of ANSI/NFPA 70.
- B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

1.8 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on Utility Company drawings.

PART 2 PRODUCTS

2.1 GENERAL

- A. Locate meter pedestal such that the pull section access meets the requirements of SDG&E.

2.2 MANUFACTURERS

- A. Milbank.
- B. Meyers.
- C. Substitutions: Approved equals.

2.3 METER PEDESTAL

- A. Ratings: NEMA 3R enclosure, 100 amp, 120/240 volt, single phase, three wire, 42, 000 amp AIC. Provide main overcurrent device as indicated.
- B. The meter pedestal shall have a meter socket with test blocks that meet the requirements of the serving utility (San Diego Gas and Electric Company). The service cabinet shall bear a UL 508 industrial control panel label for service entrance equipment.
- C. Cabinet shall be fabricated from 12 gauge hot dipped galvanized steel and shall be all welded construction. All fasteners, hinges, latches and hardware shall be of stainless steel and hinges shall be continuous piano style. Enclosure shall be vandal-resistant. There shall be no exposed, nuts, bolts, screws, rivets, or other fasteners on the exterior. Cabinet door shall have 2,000lb. Stress rated stainless steel hasp welded to cabinet and door.
- D. All bussing shall be U.L. approved copper THHN cable bussing fully rated 100 amps.
- E. Provide pad mount base for concrete foundation.
- F. Enclosure shall have a powder coat finish in accordance with ASTM B-117. Color shall be manufacturer's standard.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that service equipment is ready to be connected and energized.

3.2 PREPARATION

- A. Make arrangements with Utility Companies to obtain new permanent electric service.
- B. Coordinate location of Utility Companies facilities to ensure proper access is available.

3.3 INSTALLATION

- A. Install service entrance conduits from Utility Companies indicated point of connection to meter pedestal per Utility Companies drawings.

PART 4 – MEASUREMENT AND PAYMENT

4.1 536/390 ZONE PRESSURE REGULATING STATION RELOCATION, BID ITEM NO. 62:

- A. No measurement shall be made for this item.
- B. 536/390 ZONE PRESSURE REGULATING STATION RELOCATION will be paid at the Contract lump sum amount for 536/390 ZONE PRESSURE REGULATING STATION RELOCATION, which amount will include full compensation for furnishing all labor, materials, equipment, tools, export of excavated material, soil compaction, incidentals and for doing the work including preparation and implementation of the plan, as shown on the drawings and as specified in these specifications and no additional compensation will be allowed.
- C. Payment shall be made upon completion and acceptance of pressure regulating station.

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- C. Payment shall be made upon completion and acceptance of the sump pump installation.

END OF SECTION

SECTION 16450

GROUNDING

PART 1 --GENERAL

1.1 SUMMARY

- A. This section describes the requirements for grounding.

1.2 SUBMITTALS

- A. Manufacturer's Catalog Information for all products listed in Part 2.
- B. Testing results.

PART 2 --PRODUCTS

2.01 GROUND CONNECTIONS:

- A. Water system piping clamps: Cast bronze clamps with stainless steel screws.
- B. Cable lugs: Shall be wrought copper with high pressure crimp sleeve for the conductor.
- C. Ground rod connections: Exothermic weld or high pressure crimp type.
- D. Exothermic welds: UL approved and or listed systems with mold, weld cartridges, and weld powder specifically approved for the particular application.
- E. Terminal lugs for shielded instrument cable: Crimp type sized to meet the specific shield requirements.

PART 3 --EXECUTION

3.1 GENERAL

- A. Install the grounding electrode system with all required components in accordance with NEC Article 250.

- B. Provide and install at least one ground rod at each instrument or panel rack. The length of rods forming an individual ground array shall be equal in length and shall be of the quantity required to obtain a ground resistance of less than 5 ohms.
- C. Unless otherwise specified, ground all non-current carrying metallic parts of electrical equipment, support structures, raceway systems, and the neutral of all wiring systems in accordance with the NEC and other applicable codes and with the manufacturer's recommendations.
- D. All grounds and ground systems shall be bonded together.
- E. Grounding system may be bonded to buried metal piping not less than 2-inch diameter or provide grounding rod driven a minimum of nine feet in the ground. The ground clamp connection to the metal pipe shall be not more than one foot inside the building. Ground conductor for connection to ground rod shall be stranded copper and connected by the exothermic welding process. Earth buried ground conductors shall not be insulated. File or sand surfaces before connecting ground to ensure good metal to metal contact.
- F. Bond the grounding conductors to metallic enclosures at each end and to all intermediate metallic enclosures. Where equipment contains a ground bus, extend and connect grounding conductors to that bus. Run ground conductors inside conduits enclosing the power conductors.
- G. Make connections of grounding conductors to circuits 20 amps or above by a solderless terminal and a 5/16 minimum bolt tapped to the motor frame or equipment housing. Ground connections to smaller equipment may be made by fastening the terminal to a connection box. Connect junction boxes to the equipment grounding system with grounding clips mounted directly on the box or with 3/8-inch machine screws. Remove all paint, dirt, or other surface coverings at grounding conductor connection points so that good metal to metal contact is made.

3.2 PANEL AND ENCLOSURE GROUNDING

- A. Bond panels and enclosures to building grounds.
- B. Provide new ground rod where ground cable routed with conduit is not bonded to earth ground within 50 feet. Bond equipment-grounding conductors to earth ground through the panel.

3.3 INSTRUMENT SIGNAL SHIELD GROUNDING

- A. Ground instrument signal shields at one location only.

- B. Termination of each shield drain wire shall be on its own terminal screw. All of the terminal screws in one rack or panel shall be jumpered with No. 16 solid tinned bare copper wire; connection to ground shall be accomplished with a No. 12 green insulated conductor to the main ground bus
- C. As a general rule, ground shields at local or area control panels nearest the instrument. If no panel is nearby, ground shields at the instrument power source. If a signal passes through several panels, ground at the panel with the most loops.
- D. At the ungrounded end, trim back and insulate shield.
- E. If a signal passes through a junction box or barrier strip, maintain shield continuity.

3.05 TESTING

- A. All tests shall be performed in the presence of the Resident Engineer.
- B. Perform a thorough visual and mechanical inspection to ensure all items are in place and connected with all termination made in an approved manner.

PART 4 – MEASUREMENT AND PAYMENT

4.1 536/390 ZONE PRESSURE REGULATING STATION RELOCATION, BID ITEM NO. 62:

- A. No measurement shall be made for this item.
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- C. Payment shall be made upon completion and acceptance of pressure regulating station.

4.2 SUMP PUMP AND ELECTRICAL CONDUIT AND WIRING TO SDG&E SERVICE, BID ITEM NO. 63:

- A. No measurement shall be made for this item.
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including preparation and implementation of the plan, as shown on the drawings and as specified in these specifications and no additional compensation will be allowed.

- C. Payment shall be made upon completion and acceptance of the sump pump installation.

END OF SECTION

SECTION 16950

ELECTRICAL TESTS

PART 1 -- GENERAL

1.1 WORK OF THIS SECTION

- A. The CONTRACTOR shall test, commission and demonstrate that the electrical work satisfies the criteria of these Specifications and functions as required by the Contract Documents.

1.2 GENERAL

- A. The Work of this Section includes furnishing the labor, equipment and power required to support the testing in other Divisions of these Specifications. This scope may require the CONTRACTOR to activate circuits, shutdown circuits, run equipment, make electrical measurements, replace blown fuses, and install temporary jumpers.

1.3 RELATED SECTIONS

- A. The Work of the following Sections applies to the Work of this Section. Other Sections, not referenced below, shall also apply to the extent required for proper performance of this Work.
 - 1. Section 16010 - Basic Electrical Requirements

1.4 CODES

- A. The Work of this Section shall comply with the current editions of the National Electrical Code as adopted by the City of San Diego.

1.5 STANDARDS

- A. Except as otherwise indicated, the current editions of the following apply to the Work of this Section:
 - 1. NETA National Electrical Testing Association
 - 2. ICEA Insulated Cable Engineers Association

1.6 TESTING

- A. The following test requirements are intended to supplement test and acceptance criteria that may be stated elsewhere.

1. Test ground interrupter (GFI) receptacles and circuit breakers for proper operation by methods sanctioned by the receptacle manufacturer.
 2. A functional test and check of all electrical components is required prior to performing subsystem testing and commissioning. Compartments and equipment shall be cleaned as required by other provisions of these Specifications before commencement of functional testing. Functional testing shall comprise:
 - a. Visual and physical check of cables and connections associated with all new and modified equipment.
 3. Complete ground testing of all grounding electrodes prior to operating the equipment. Use a three-point ground test.)
- B. Subsystem testing shall occur after the proper operation of alarm and status contacts has been demonstrated or otherwise accepted by the Resident Engineer and after process control devices have been adjusted as accurately as possible. It is intended that the CONTRACTOR will adjust limit switches and level switches to their operating points prior to testing.
- C. Provide ground resistance tests in the presence of the Resident Engineer and submit results. Use a ground resistance meggar "Earth" tester with a maximum of 0-50 scale. Use the full of potential method or the three terminal method as described by Biddle or Neta.
- D. General: Carry out tests for individual items of materials and equipment indicated in other Sections.

1.7 COMMISSIONING

- A. Commissioning shall not be attempted until all subsystems have been found to operate satisfactorily; commissioning shall only be attempted as a function of normal plant operation in which plant process flows and levels are routine and equipment operates automatically in response to flow and level parameters or computer command, as applicable. Simulation of process parameters will be considered only upon receipt of a written request.

PART 2 -- PRODUCTS (Not

Used) PART 3 -- EXECUTION

(Not Used)

PART 4 – MEASUREMENT AND PAYMENT

4.1 536/390 ZONE PRESSURE REGULATING STATION RELOCATION, BID ITEM NO. 62:

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- C. Payment shall be made upon completion and acceptance of the sump pump installation.

END OF SECTION

the notification the date and list of contents of the submittal.

For initial review, submit 6 copies for railroad bridges and 4 copies for other structures. After review, submit 6 to 12 copies, as requested, for authorization and use during construction. Allow 55 days for the Department's review for railway bridges and at least 45 days for all other structures.

Shop drawings must include a description of the method of mechanical interlocking of PTFE fabric to the metallic substrate.

51-3.03A(4) Quality Assurance

51-3.03A(4)(a) General

A qualified representative of the bearing manufacturer must be present during installation of the 1st bearing and be available during remaining installations.

51-3.03A(4)(b) Quality Control

51-3.03A(4)(b)(i) General

Reserved

51-3.03A(4)(b)(ii) Proof Testing

Proof test the PTFE pipe slide bearings in the Engineer's presence as follows:

1. Test bearings for compression and initial static coefficient of friction.

Notify the Engineer at least 7 days before starting proof testing.

If proof tests cannot be performed at the specified load, perform the additional physical tests described in the testing plan in the presence of the Engineer. The tests must demonstrate that the requirements for proof testing at the specified load are satisfied.

Before proof testing, the test bearings must be conditioned for 12 hours at 75 ± 5 degrees F. Clean the bearing surfaces before testing.

For compression testing of PTFE pipe slide bearings: Hold for 1 hour at a 45 kip vertical load.

For coefficient of friction testing of PTFE pipe slide bearings:

1. Continuously load the bearing to a 30 kip load for 12 hours before testing. Maintain the load during testing.
2. Measure the initial static coefficient of friction on the 1st movement of the bearing.

3. Measure the initial static and dynamic coefficients of friction at a sliding speed of not more than 1 inch per minute. The initial static friction must not exceed that specified.
4. Cycle the test bearings for a minimum of 100 movements. Each movement must consist of at least 1 inch of relative movement at a sliding speed of not more than 12 inches per minute. After cycling, measure the initial static and dynamic coefficients of friction at a sliding speed of not more than 1 inch per minute. The initial static friction must not exceed that specified.

Proof-tested bearings must not show any signs of the following:

1. Bond failure of bearing surfaces
2. Separation or lift-off of plates from each other or from PTFE surfaces
3. Excessive transfer of PTFE to the stainless steel surface
4. Other defects

Proof-tested bearings can be used in project construction unless they fail to comply with the above requirements

51-3.03B Materials

51-3.03B(1) General

Welding must comply with AWS D1.1 except welding of stainless steel must comply with AWS D1.6.

PTFE pipe slide bearings must be self-lubricating.

PTFE surfaces must be unfilled fabric made from virgin PTFE oriented multifilament and other fibers. Filament resin must comply with ASTM D4441.

At the highest point of substrate and after compression, the PTFE fabric must have a thickness from 1/16 to 1/8 inch.

Steel plates must comply with ASTM A709/A709M.

Stainless steel plates must comply with ASTM A240/A240M, Type 304, and be at least 1/8 inch thick.

WT Sections must comply with ASTM A992/A992M.

Surfaces of flat stainless steel that mate with PTFE surfacing must have a minimum no. 8 mirror finish.

PTFE pipe slide bearings must have an initial static coefficient of friction of at most 0.06.

Stud connectors must comply with section 55-1.02.

Protect bearing surfaces from contamination and weather damage.

51-3.03B(2) Fabrication

Flat stainless steel surfaces must be a weld overlay on structural steel plate or a solid or sheet stainless steel.

Curved stainless steel surfaces must be solid stainless steel except curved stainless steel surfaces over 6 inches thick may be a weld overlay on structural steel plate.

If a weld overlay is used for stainless steel surfacing, attach the overlay by submerged arc welding using Type 309L electrodes. The completed overlay must have a 3/32-inch minimum thickness after fabrication.

If stainless steel sheets are used for stainless steel surfacing, attach the sheets by perimeter arc welding using Type 309L electrodes. After welding, the stainless steel surface must be smooth and without waves.

PTFE fabric backing material on bearing surfaces must be epoxy bonded and mechanically interlocked to the steel substrate. Bonding must be performed under controlled factory conditions. Except for the selvage, oversaw or recess edges such that no cut fabric edges are exposed.

During fabrication, the maximum temperature of bonded PTFE surfaces must be 300 degrees F.

After bonding to the substrate, the PTFE surface must be smooth and free from bubbles.

Assemble PTFE pipe slide bearings at the fabrication site.

The PTFE and stainless steel interfaces must be in full bearing after completing assembly.

Use at least 4 steel straps bolted to threaded holes in the masonry and sole plates to secure each bearing assembly as a unit for shipment. Steel straps must (1) not be welded and (2) be adequate to use for lifting the bearing assembly. Bearings must be shipped as a unit and remain intact when uncrated and installed.

Except for stainless steel surfaces, clean and paint metal bearing surfaces after fabrication under the specifications for new structural steel in section 59-2. SSPC-QP 1, SSPC-QP 2, and AISC-420-10/SSPC-QP 3 certifications are not required.

SUPPLEMENTARY SPECIAL PROVISIONS
APPENDICES

APPENDIX A

NOTICE OF EXEMPTION AND ADDENDUM TO A MITIGATED NEGATIVE DECLARATION

NOTICE OF EXEMPTION

(Check one or both)

TO: X RECORDER/COUNTY CLERK
P.O. BOX 1750, MS A-33
1600 PACIFIC HWY, ROOM 260
SAN DIEGO, CA 92101-2422

FROM: CITY OF SAN DIEGO
DEVELOPMENT SERVICES DEPARTMENT
1222 FIRST AVENUE, MS 501
SAN DIEGO, CA 92101

OFFICE OF PLANNING AND RESEARCH
1400 TENTH STREET, ROOM 121
SACRAMENTO, CA 95814

PROJECT No.: B-13066.02.06

PROJECT TITLE: REDWOOD & 30TH CR OBSTRUCTION DS

PROJECT LOCATION-SPECIFIC: The project is located at the intersection of Redwood Street and 30th Street within the Greater North Park community planning area (Council District 3).

PROJECT LOCATION-CITY/COUNTY: San Diego/San Diego

DESCRIPTION OF NATURE AND PURPOSE OF THE PROJECT: The project will remove and replace curb, gutter, and sidewalk at all four corners. This is an ADA federal requirement and mandate. The missing curb ramps represent a safety concern, because people are not able to safely navigate the intersection due to present conditions. To accommodate installation of the new curb ramps, additional improvements include new street pavement, crosswalk striping, relocation of traffic signal poles, walls, fire hydrants, and landscaping. Further excavation in the Right of Way is needed to replace-in-place 4 existing storm drain inlets. The existing storm drain inlets to be altered are between 5-7 feet from top of curb to bottom of the inlet box. The new inlet boxes will be the same depth.

NAME OF PUBLIC AGENCY APPROVING PROJECT: City of San Diego

NAME OF PERSON OR AGENCY CARRYING OUT PROJECT: City of San Diego, Public Works Contact: Dean Marsden 525 B Street, Suite 750 (MS 908A) San Diego, CA 92101 (619) 533-4608

EXEMPT STATUS:

- () MINISTERIAL (SEC. 21080(b)(1); 15268);
() DECLARED EMERGENCY (SEC. 21080(b)(3); 15269(a));
() EMERGENCY PROJECT (SEC. 21080(b)(4); 15269 (b)(c))
(X) CATEGORICAL EXEMPTION: 15301(C) EXISTING FACILITIES AND 15302(C) REPLACEMENT OR RECONSTRUCTION
() STATUTORY EXEMPTION:

REASONS WHY PROJECT IS EXEMPT: The City of San Diego conducted an environmental review which determined that the improvements are located within the public right of way and all improvements occur in non-sensitive areas. The action of the improvements related to this project and the scope, would not have any affects on archaeological or biological resources. Furthermore the project meets the criteria set forth in CEQA Section 15301(c) Existing Facilities and 15302(C) Replacement or Reconstruction, which allow for minor alteration or reconstruction of public structures or facilities; and does not trigger any of the exceptions to categorical exemptions found in State CEQA Guideline §15300.2.

LEAD AGENCY CONTACT PERSON: JEFF SZYMANSKI TELEPHONE: 619 446-5324

IF FILED BY APPLICANT:

- 1. ATTACH CERTIFIED DOCUMENT OF EXEMPTION FINDING.
2. HAS A NOTICE OF EXEMPTION BEEN FILED BY THE PUBLIC AGENCY APPROVING THE PROJECT?
() YES () NO

IT IS HEREBY CERTIFIED THAT THE CITY OF SAN DIEGO HAS DETERMINED THE ABOVE ACTIVITY TO BE EXEMPT FROM CEQA

Handwritten signature and title: Jeff Szymanski / SENIOR PLANNER

6/11/14 DATE

- (X) SIGNED BY LEAD AGENCY
() SIGNED BY APPLICANT

DATE RECEIVED FOR FILING WITH COUNTY CLERK OR OPR:

ADDENDUM TO A MITIGATED NEGATIVE DECLARATION

Project No. 514031
Addendum to MND No. 255100
SCH No. 2011091045

SUBJECT: 30th Street Pipeline Replacement Project

I. PROJECT DESCRIPTION

The 30th Street Pipeline Replacement project is a part of the City of San Diego's on-going Water Main Replacement Program. The existing water lines are old, and are nearing the end of their service life. Construction of the project will reduce maintenance requirements, correct hydraulic deficiencies, improve reliability and accessibility, and bring the water main system up to current design standards.

Location of Improvements:

The project is located within the community planning areas of Greater Golden Hill, North Park, and Southeastern San Diego within Council Districts 3 and 8. Specifically, the improvements would be located below 30th Street (Two segments between Commercial Street and Thorn Street), Fern Street (Between Juniper Street and A Street), University Avenue (Between Ray Street and 30th Street), G Street (Between 30th Street and 30th Place), Upas Street (Between 30th Street and Ray Street), and Grape Street (Between two off-setting intersections with Fern Street). All work would occur within previously developed locations with existing right-of-way.

Scope of Improvements:

The project's scope is inclusive of replacing 21,987 linear feet (LF) of existing water main lines within existing trench alignments; providing 4,736 LF within new trench locations, and providing 114 LF of improvements utilizing trenchless technology with providing 6-, 8-, 12-, 16-, 24-, 30- and 36 inch piping, consisting of AC (Asbestos Concrete), CI (Cast Iron), PVC (Polyvinyl Chloride), CICL (Cast Iron Cement Lined) and RCSC (Reinforced Concrete Steel Cylinder).

The installation of the water mains would be provided utilizing an "open-trench" method. "Trenchless" technology would be implemented at the Commercial Street segment where piping would be installed underneath existing trolley tracks. Additionally, a segment of the pipeline would be provided, where 30th Street crosses State Highway 94. Coordination with Caltrans would be implemented with this portion of the project.

It should also be noted that segments of existing mains are proposed to be abandoned as a part of this project. The includes a small approximate 75' segment, underneath Commercial Street, underneath the trolley tracks; a segment between Polk Avenue and University Avenue, underneath 30th Street; a segment between University Avenue and Upas Street, underneath Ray Street; a segment between Thorn Street and Olive Street, underneath 30th Street; a segment between Maple Court and Juniper Street, underneath 30th Street; a segment between Juniper Street and Grape Street, underneath Fern Street; a segment between 30th Street and Fern Street, underneath Grape Street; a segment between Grape Street and Elm Avenue, underneath Fern Street; a small approximate 100' segment, south of Date Street, underneath Fern Street; and a small approximate 150' segment, north of A Street, underneath Fern Street. Pipeline abandonment activities will have minimum surface/subsurface disturbance. The lines would be left in place, capped at both ends and slurry filled per engineering design standards. All abandonments would occur within existing public right of way/roadways.

Other components of the project include an underground Pressure Reducing System (PRS), that will placed be underground convey status information to the City's Operation Center, related above ground directional antenna, installation of curb ramps, sidewalks, restriping and replacement of fire hydrants, installation of vaults at State Highway 94 section and resurfacing where applicable.

II. ENVIRONMENTAL SETTING

The project would occur within the developed public right-of-way and existing public utility easements located within the Greater Golden Hill, North Park, and Southeastern San Diego Community Planning Areas. Surrounding land uses include existing single-family and multifamily residential, commercial, park/open-space, and public/semi-public land uses.

A small portion of the project, located within the developed 30th Street alignment, between Olive Street and Maple Court, traverses Switzer Canyon and the City's MHPA (Multi-Habitat Planning Area). This portion of the project was analyzed for biological impacts which identified developed areas, eucalyptus woodland, non-native grassland, and scrub oak chaparral within the vicinity. Further, it was identified that there was reasonable evidence to assume presence of Diegan Coastal Sage Scrub, which has the potential to accommodate the breeding of California Gnatcatchers. As such, it was recommended that Land Use Adjacency Guidelines with standard language addressing impacts to the California Gnatcatcher for noise be implemented for this portion of the project.

Additionally, the project would occur within the Burlingame Historical District. Sidewalk, curb and gutter, and curb ramp improvements would be designed in a manner to match existing colors and scoring patterns. All improvements are required to be consistent with this district standards, City's Historical Resource Regulations, and U.S. Secretary of the Interior's Standards.

III. PROJECT BACKGROUND

A Citywide Pipelines Projects Mitigated Negative Declaration (MND) No. 255100 was prepared by the City of San Diego's Development Services Department (DSD) and was certified by the City Council on November 30, 2011 (Resolution No. 307122). The Citywide Pipelines Projects MND provides for the inclusion of subsequent pipeline projects that are located within the public right-of-way and would not result in any direct impacts to sensitive biological resources.

Therefore, in accordance with Section 15164 of the State CEQA Guidelines this addendum has been prepared. Additionally, in accordance with requirements in Section 128.0306 of the San Diego

Municipal Code, and State CEQA Guidelines Section 15064(c), no public review period is required for this addendum.

Historical Resources (Built Environment)

The Citywide Pipelines Project MND No. 255100 concluded that pipeline projects located within the public right-of-way and city easements could result in significant environmental impacts relating to historical resources within the built environment, which included mitigation to reduce impacts to historical resources to below a level of significance. As previously stated, the project would occur within the Burlingame Historical District. As such, sidewalk, curb and gutter, and curb ramp improvements would be designed in a manner to match existing colors and scoring patterns. All improvements are required to be consistent with this district standards, City's Historical Resource Regulations, and U.S. Secretary of the Interior's Standards. It was determined the project is subject to the mitigation requirements inclusive of Historical Resources (Built Environment) mitigation language, specified in accordance with the Mitigation Monitoring and Reporting Program (MMRP) detailed in Section VI.

Land Use (MHPA Adjacency)

The disturbed portions of the project involving trenching activities is located outside but adjacent to the City's Multi Habitat Planning Area, which is limited to the 30th Street alignment, between Olive Street and Maple Court, traversing Switzer Canyon. It was determined specifically for this portion of the project is subject to the MHPA land use adjacency mitigation requirements, inclusive of mitigation for avian protection (California Gnatcatcher), specified in accordance with the mitigation monitoring and Reporting Program (MMRP), detailed in Section VI.

IV. ENVIRONMENTAL DETERMINATION

The City previously prepared and certified the **Mitigated Negative Declaration (No. 255100 / SCH No. 2011091045)**. Based on all available information in light of the entire record, the analysis in this Addendum, and pursuant to Section 15162 of the State CEQA Guidelines, the City has determined the following:

- There are no substantial changes proposed in the project which will require major revisions of the previous environmental document due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;
- Substantial changes have not occurred with respect to the circumstances under which the project is undertaken which will require major revisions of the previous environmental document due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
- There is no new information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous environmental document was certified as complete or was adopted, shows any of the following:
 - a. The project will have one or more significant effects not discussed in the previous environmental document;

- b. Significant effects previously examined will be substantially more severe than shown in the previous environmental document;
- c. Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
- d. Mitigation measures or alternatives which are considerably different from those analyzed in the previous environmental would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

Based upon a review of the current project, none of the situations described in Sections 15162 and 15164 of the State CEQA Guidelines apply. No changes in circumstances have occurred, and no new information of substantial importance has manifested, which would result in new significant or substantially increased adverse impacts as a result of the project. Therefore, this Addendum has been prepared in accordance with Section 15164 of the CEQA State Guidelines. Public review of this Addendum is not required per CEQA.

V. IMPACT ANALYSIS

The subsequent impact analysis is to demonstrate that environmental impacts associated with the project are consistent with the previously certified MND. The following includes the project-specific environmental review pursuant to the CEQA. The analysis in this document evaluates the adequacy of the MND relative to the project.

Historical Resources (Built Environment)

The Citywide Pipelines Project MND No. 255100 concluded that pipeline projects located within the public right-of-way and city easements could result in significant environmental impacts relating to historical resources within the built environment, which included mitigation to reduce impacts to historical resources to below a level of significance. As previously stated, the project would occur within the Burlingame Historical District. As such, sidewalk, curb and gutter, and curb ramp improvements would be designed in a manner to match existing colors and scoring patterns. All improvements are required to be consistent with this district standards, City's Historical Resource Regulations, and U.S. Secretary of the Interior's Standards. It was determined the project is subject to the mitigation requirements inclusive of Historical Resources (Built Environment) mitigation language, specified in accordance with the Mitigation Monitoring and Reporting Program (MMRP) detailed in Section VI.

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VI. MITIGATION, MONITORING AND REPORTING PROGRAM

GENERAL REQUIREMENTS

1. Prior to issuance of a Notice to Proceed (NTP), the Assistant Deputy Director (ADD) Environmental Designee of the Entitlements Division shall verify that Mitigation Measures for **HISTORICAL RESOURCES (Built Environment)** and **LAND USE (MHPA ADJACENCY)** have been included in entirety on the submitted construction documents and contract specifications, and included under the heading, "Environmental Mitigation Requirements." In addition, the requirements for a Preconstruction Meeting shall be noted on all construction documents.
2. Prior to the commencement of work, a Preconstruction Meeting (Pre-con) shall be conducted and include the City of San Diego's Mitigation Monitoring Coordination (MMC) Section, Resident Engineer, Building Inspector, Project Consultant (**Qualified Historic Consultant or Archeologist, Biologist**) Applicant and other parties of interest.
3. Evidence of compliance with other permitting authorities is required, if applicable. Evidence shall include either copies of permits issued, letters of resolution issued by the Responsible Agency documenting compliance, or other evidence documenting compliance and deemed acceptable by the ADD Environmental Designee.

HISTORICAL RESOURCES (BUILT ENVIRONMENT)

The project is located within the Burlingame Historic District, bounded by Nutmeg Street to the north, 32nd Street to the east, alleyway, between Juniper Street and Kalmia Street, to the south, and 30th Street to the west. All work within the District boundary must be consistent with the City's Historical Resources Regulations, the U.S. Secretary of the Interior's Standards and the Burlingame Historic District Design Guidelines. The following mitigation measures are required within the District boundary and shall ensure consistency with these regulations, Standards and guidelines.

- A. Prior to beginning any work at the site, a Pre-Construction meeting that includes Historic Resources and MMC staff shall be held at the project site to review these mitigation measures and requirements within the District boundary.
- B. A Historic Sidewalk Stamp Inventory prepared by a qualified historic consultant or archaeologist and approved by HRB staff is required prior to the Pre-Construction (Pre- Con) meeting. The Inventory shall include photo documentation of all existing stamps within the project area keyed to a project site plan.
- C. Existing sidewalk stamps shall be preserved in place. Where existing sidewalk stamps must be impacted to accommodate right-of-way improvements, the following actions are required:
 1. A mold of the sidewalk stamp will be made to allow reconstruction of the stamp if destroyed during relocation.

2. The sidewalk stamp shall be saw-cut to preserve the stamp in its entirety; relocated as near as possible to the original location and set in the same orientation.
 3. If the sidewalk stamp is destroyed during relocation, a new sidewalk stamp shall be made from the mold taken and relocated as near as possible to the original location and set in the same orientation.
- D. No new sidewalk stamps shall be added by any contractor working on the project.
 - E. Existing historic sidewalk, parkway and street widths shall be maintained. Any work that requires alteration of these widths shall be approved by Historic Resources staff.
 - F. Existing historic curb heights and appearance shall be maintained. Any work that requires alteration of the existing height or appearance shall be approved by Historic Resources staff.
 - G. Sections of sidewalk which may be impacted by the project shall be replaced in-kind to match the historic color, texture and scoring pattern of the original sidewalks. If the original color, scoring pattern or texture is not present at the location of the impact, the historically appropriate color, texture and scoring pattern found throughout the district shall be used.
 - H. Truncated domes used at corner curb ramps shall be dark grey in color.
 - I. Existing historic lighting, such as acorn lighting shall remain. New lighting shall be consistent with existing lighting fixtures, or fixtures specified in any applicable District Design Guidelines.
 - J. Existing mature trees shall remain. New street trees shall be consistent with the prevalent mature species in the District and/or species specified in any applicable District Design Guidelines.
 - K. Any walls located within the right-of-way or on private property are considered historic and may not be impacted with prior review and approval by Historic Resources staff.

LAND USE (MHPA ADJACENCY)

Prior to issuance of any construction permit or notice to proceed, DSD/ LDR, and/or MSCP staff shall verify the Applicant has accurately represented the project's design in or on the Construction Documents (CD's/CD's consist of Construction Plan Sets for Private Projects and Contract Specifications for Public Projects) are in conformance with the associated discretionary permit conditions and Exhibit "A", and also the City's Multi-Species Conservation Program (MSCP) Multi-Habitat Planning Area (MHPA) Land Use Adjacency Guidelines. The applicant shall provide an implementing plan and include references on/in CD's of the following:

- A. Grading/Land Development/MHPA Boundaries - MHPA boundaries on-site and adjacent properties shall be delineated on the CDs. DSD Planning and/or MSCP staff shall ensure that all grading is included within the development footprint, specifically manufactured slopes, disturbance, and development within or adjacent to the MHPA. For projects within or adjacent to the MHPA, all manufactured slopes associated with site development shall be included within the development footprint.

- B. Drainage - All new and proposed parking lots and developed areas in and adjacent to the MHPA shall be designed so they do not drain directly into the MHPA. All developed and paved areas must prevent the release of toxins, chemicals, petroleum products, exotic plant materials prior to release by incorporating the use of filtration devices, planted swales and/or planted detention/desiltation basins, or other approved permanent methods that are designed to minimize negative impacts, such as excessive water and toxins into the ecosystems of the MHPA.
- C. Toxics/Project Staging Areas/Equipment Storage - Projects that use chemicals or generate by-products such as pesticides, herbicides, and animal waste, and other substances that are potentially toxic or impactful to native habitats/flora/fauna (including water) shall incorporate measures to reduce impacts caused by the application and/or drainage of such materials into the MHPA. No trash, oil, parking, or other construction/development-related material/activities shall be allowed outside any approved construction limits. Where applicable, this requirement shall be incorporated into leases on publicly-owned property when applications for renewal occur. Provide a note in/on the CD's that states: "All construction related activity that may have potential for leakage or intrusion shall be monitored by the Qualified Biologist/Owners Representative or Resident Engineer to ensure there is no impact to the MHPA."
- D. Lighting - Lighting within or adjacent to the MHPA shall be directed away/shielded from the MHPA and be subject to City Outdoor Lighting Regulations per LDC Section 142.0740.
- E. Barriers - New development within or adjacent to the MHPA shall be required to provide barriers (e.g., non-invasive vegetation; rocks/boulders; 6-foot high, vinyl-coated chain link or equivalent fences/walls; and/or signage) along the MHPA boundaries to direct public access to appropriate locations, reduce domestic animal predation, protect wildlife in the preserve, and provide adequate noise reduction where needed.
- F. Invasives- No invasive non-native plant species shall be introduced into areas within or adjacent to the MHPA.
- G. Brush Management - New development adjacent to the MHPA shall be set back from the MHPA to provide required Brush Management Zone 1 area on the building pad outside of the MHPA. Zone 2 may be located within the MHPA provided the Zone 2 management will be the responsibility of an HOA or other private entity except where narrow wildlife corridors require it to be located outside of the MHPA. Brush management zones will not be greater in size than currently required by the City's regulations, the amount of woody vegetation clearing shall not exceed 50 percent of the vegetation existing when the initial clearing is done and vegetation clearing shall be prohibited within native coastal sage scrub and chaparral habitats from March 1-August 15 except where the City ADD/MMC has documented the thinning would be consistent with the City's MSCP Subarea Plan. Existing and approved projects are subject to current requirements of Municipal Code Section 142.0412.
- H. Noise - Due to the site's location adjacent to or within the MHPA where the Qualified Biologist has identified potential nesting habitat for listed avian species, construction noise that exceeds the maximum levels allowed shall be avoided during the breeding seasons for the following: California Gnatcatcher (3/1-8/15); Least Bell's vireo (3/15-9/15); and Southwestern Willow Flycatcher (5/1-8/30) (select only the species that apply). If construction is proposed during the breeding season for the species, U.S. Fish and Wildlife Service protocol surveys shall

be required in order to determine species presence/absence. If protocol surveys are not conducted in suitable habitat during the breeding season for the aforementioned listed species, presence shall be assumed with implementation of noise attenuation and biological monitoring.

When applicable (i.e., habitat is occupied or if presence of the covered species is assumed), adequate noise reduction measures shall be incorporated as follows:

COASTAL CALIFORNIA GNATCATCHER (Federally Threatened)

1. Prior to the preconstruction meeting, the City Manager (or appointed designee) shall verify that the Multi-Habitat Planning Area (MHPA) boundaries and the following project requirements regarding the coastal California gnatcatcher are shown on the construction plans:

NO CLEARING, GRUBBING, GRADING, OR OTHER CONSTRUCTION ACTIVITIES SHALL OCCUR BETWEEN MARCH 1 AND AUGUST 15, THE BREEDING SEASON OF THE COASTAL CALIFORNIA GNATCATCHER, UNTIL THE FOLLOWING REQUIREMENTS HAVE BEEN MET TO THE SATISFACTION OF THE CITY MANAGER:

- A. A QUALIFIED BIOLOGIST (POSSESSING A VALID ENDANGERED SPECIES ACT SECTION 10(a)(1)(A) RECOVERY PERMIT) SHALL SURVEY THOSE HABITAT AREAS WITHIN THE MHPA THAT WOULD BE SUBJECT TO CONSTRUCTION NOISE LEVELS EXCEEDING 60 DECIBELS [dB(A)] HOURLY AVERAGE FOR THE PRESENCE OF THE COASTAL CALIFORNIA GNATCATCHER. SURVEYS FOR THE COASTAL CALIFORNIA GNATCATCHER SHALL BE CONDUCTED PURSUANT TO THE PROTOCOL SURVEY GUIDELINES ESTABLISHED BY THE U.S. FISH AND WILDLIFE SERVICE WITHIN THE BREEDING SEASON PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION. IF GNATCATCHERS ARE PRESENT, THEN THE FOLLOWING CONDITIONS MUST BE MET:
 - I. BETWEEN MARCH 1 AND AUGUST 15, NO CLEARING, GRUBBING, OR GRADING OF OCCUPIED GNATCATCHER HABITAT SHALL BE PERMITTED. AREAS RESTRICTED FROM SUCH ACTIVITIES SHALL BE STAKED OR FENCED UNDER THE SUPERVISION OF A QUALIFIED BIOLOGIST; AND
 - II. BETWEEN MARCH 1 AND AUGUST 15, NO CONSTRUCTION ACTIVITIES SHALL OCCUR WITHIN ANY PORTION OF THE SITE WHERE CONSTRUCTION ACTIVITIES WOULD RESULT IN NOISE LEVELS EXCEEDING 60 dB (A) HOURLY AVERAGE AT THE EDGE OF OCCUPIED GNATCATCHER HABITAT. AN ANALYSIS SHOWING THAT NOISE GENERATED BY CONSTRUCTION ACTIVITIES WOULD NOT EXCEED 60 dB (A) HOURLY AVERAGE AT THE EDGE OF OCCUPIED HABITAT MUST BE COMPLETED BY A QUALIFIED ACOUSTICIAN (POSSESSING CURRENT NOISE ENGINEER LICENSE OR REGISTRATION WITH MONITORING NOISE LEVEL EXPERIENCE WITH LISTED ANIMAL SPECIES) AND APPROVED BY THE CITY MANAGER AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES DURING THE BREEDING SEASON, AREAS RESTRICTED FROM SUCH ACTIVITIES SHALL BE STAKED OR FENCED UNDER THE SUPERVISION OF A QUALIFIED BIOLOGIST; OR
 - III. AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES, UNDER THE DIRECTION OF A QUALIFIED ACOUSTICIAN, NOISE

ATTENUATION MEASURES (e.g., BERMS, WALLS) SHALL BE IMPLEMENTED TO ENSURE THAT NOISE LEVELS RESULTING FROM CONSTRUCTION ACTIVITIES WILL NOT EXCEED 60 dB(A) HOURLY AVERAGE AT THE EDGE OF HABITAT OCCUPIED BY THE COASTAL CALIFORNIA GNATCATCHER. CONCURRENT WITH THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES AND THE CONSTRUCTION OF NECESSARY NOISE ATTENUATION FACILITIES, NOISE MONITORING* SHALL BE CONDUCTED AT THE EDGE OF THE OCCUPIED HABITAT AREA TO ENSURE THAT NOISE LEVELS DO NOT EXCEED 60 dB (A) HOURLY AVERAGE. IF THE NOISE ATTENUATION TECHNIQUES IMPLEMENTED ARE DETERMINED TO BE INADEQUATE BY THE QUALIFIED ACOUSTICIAN OR BIOLOGIST, THEN THE ASSOCIATED CONSTRUCTION ACTIVITIES SHALL CEASE UNTIL SUCH TIME THAT ADEQUATE NOISE ATTENUATION IS ACHIEVED OR UNTIL THE END OF THE BREEDING SEASON (AUGUST 16).

The above Mitigation Monitoring and Reporting Program will require additional fees and/or deposits to be collected prior to the issuance of building permits, certificates or occupancy and/or final maps to ensure the successful completion of the monitoring program.

VII. IMPACT SIGNIFICANCE

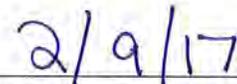
This Addendum also identifies that all significant project impacts would be mitigated to below a level of significance, consistent with the previously certified MND.

VIII. CERTIFICATION

Copies of the addendum, the final MND, **the Mitigation Monitoring and Reporting Program** and associated project-specific technical appendices, if any, may be reviewed in the office of the Development Services Department, or purchased for the cost of reproduction.



Mark Brunette, Senior Planner
Development Services Department



Date of Final Report

Analyst: Chris Tracy, AICP, Associate Planner

Attachments:

Figure 1: Location Map

Mitigated Negative Declaration No. 255100/SCH No. 2011091045

The Addendum to Mitigated Negative Declaration No. 255100 was not circulated for public review pursuant to San Diego Municipal Code (SDMC) Chapter 6, Article 9, Paragraph 69.0211 (Addenda to Environmental Reports). The final Addendum was distributed to the following City of San Diego staff members for informational purposes in accordance with CEQA Section 15164.

DISTRIBUTION:

City of San Diego

Development Services

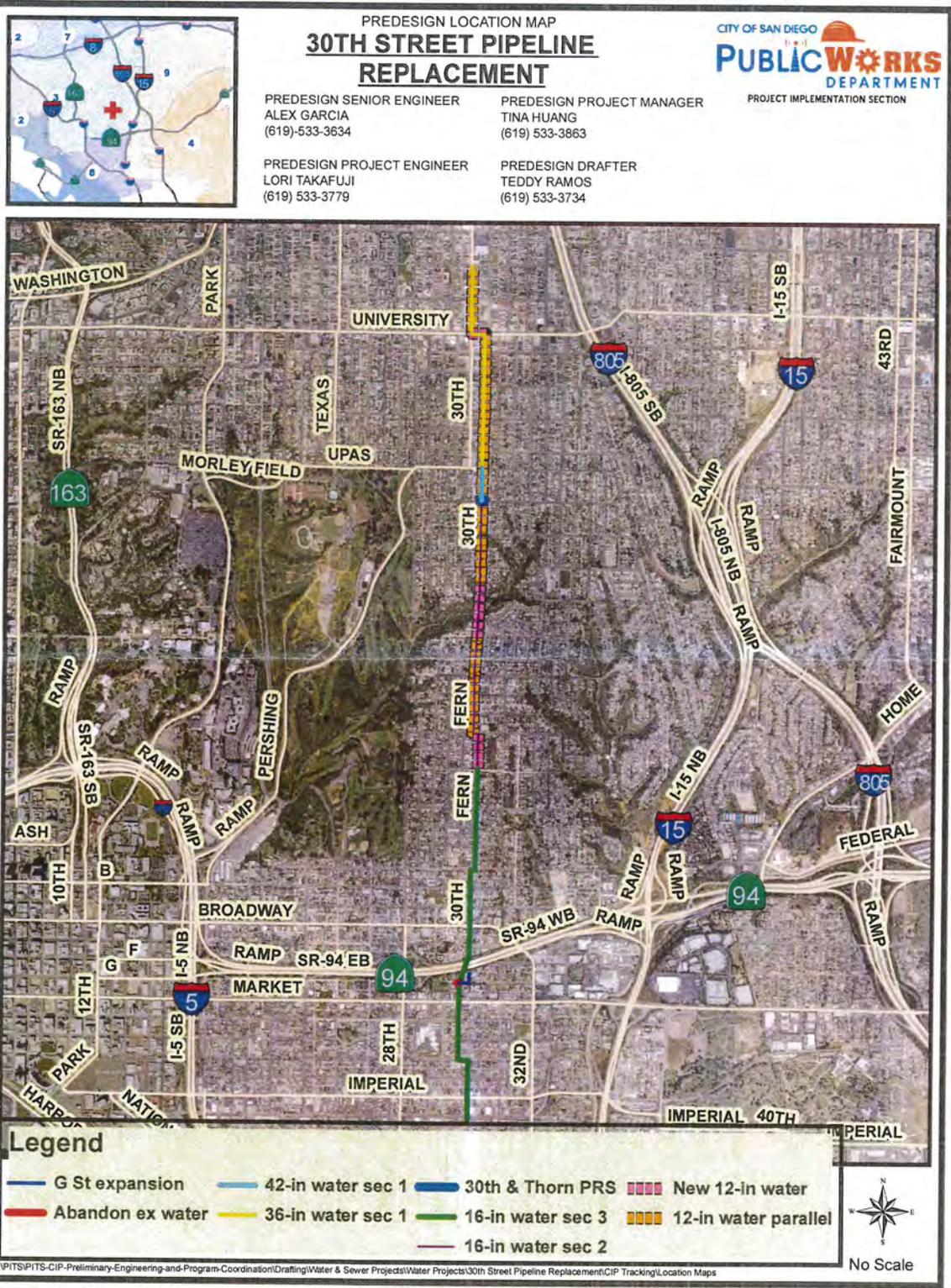
Peter Kann, Development Project Manager

Chris Tracy, Environmental Analyst
Sam Johnson, MMC

Public Works

Carrie Purcell, Assistant Deputy Director
Jenny Jarrell, Project Manager, ROW
Sheila Bose, Senior Civil Engineer, ROW
James Arnhart, Senior Planner, Public Works, PI
Mark Berlin, Associate Planner, Public Works, PI
Jong Choi, Associate Civil Engineer, Public Work, ROW

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PREDESIGN LOCATION MAP
30TH STREET PIPELINE REPLACEMENT

PREDESIGN SENIOR ENGINEER
 ALEX GARCIA
 (619)-533-3634

PREDESIGN PROJECT ENGINEER
 LORI TAKAFUJI
 (619) 533-3779

PREDESIGN PROJECT MANAGER
 TINA HUANG
 (619) 533-3863

PREDESIGN DRAFTER
 TEDDY RAMOS
 (619) 533-3734



S:\PITS\PITS-CIP-Preliminary-Engineering-and-Program-Coordination\Drafting\Water & Sewer Projects\Water Projects\30th Street Pipeline Replacement\CIP Tracking\Location Maps

Community Name: Southeastern San Diego,
 Southeastern/ Greater Golden Hill/ Greater North Park
 Date: 10-14-2013

Council District: 3 & 8

SAP ID# S12010



MATCH LINE SEE EXHIBIT 5



JACKING AND RECEIVING SHAFTS
(TRENCHLESS CONSTRUCTION)

LEGEND

REPLACE IN PLACE



REPLACE PARALLEL



NEW MAIN (OPEN TRENCH)



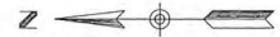
TRENCHLESS CONSTRUCTION



PROPOSED ADANDONMENT



ORTHOMAP EXHIBIT 6



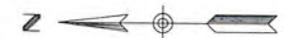
SCALE 1" = 200'



LEGEND

- REPLACE IN PLACE
- REPLACE PARALLEL
- NEW MAIN (OPEN TRENCH)
- TRENCHLESS CONSTRUCTION
- PROPOSED ADANDONMENT

ORTHOMAP EXHIBIT I



SCALE 1" = 200'

RICK
ENGINEERING COMPANY
San Diego

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619-291-0707
(FAX) 619-291-4165

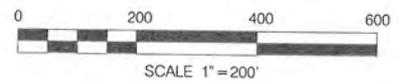
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LEGEND

- REPLACE IN PLACE
- REPLACE PARALLEL
- NEW MAIN (OPEN TRENCH)
- TRENCHLESS CONSTRUCTION
- PROPOSED ADANDONMENT

PROPOSED 536/390 PRESSURE REGULATING STATION LOCATION



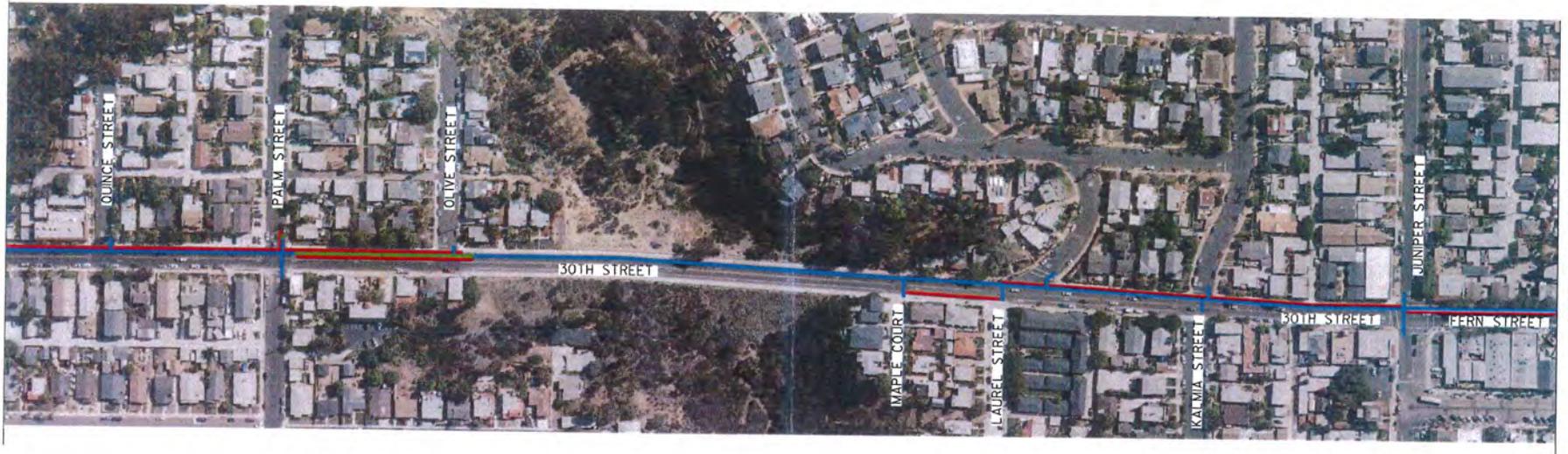
ORTHOMAP EXHIBIT 2

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MATCH LINE SEE EXHIBIT 2

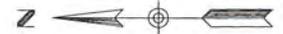


MATCH LINE SEE EXHIBIT 4

LEGEND

- REPLACE IN PLACE
- REPLACE PARALLEL
- NEW MAIN (OPEN TRENCH)
- TRENCHLESS CONSTRUCTION
- PROPOSED ADANDONMENT

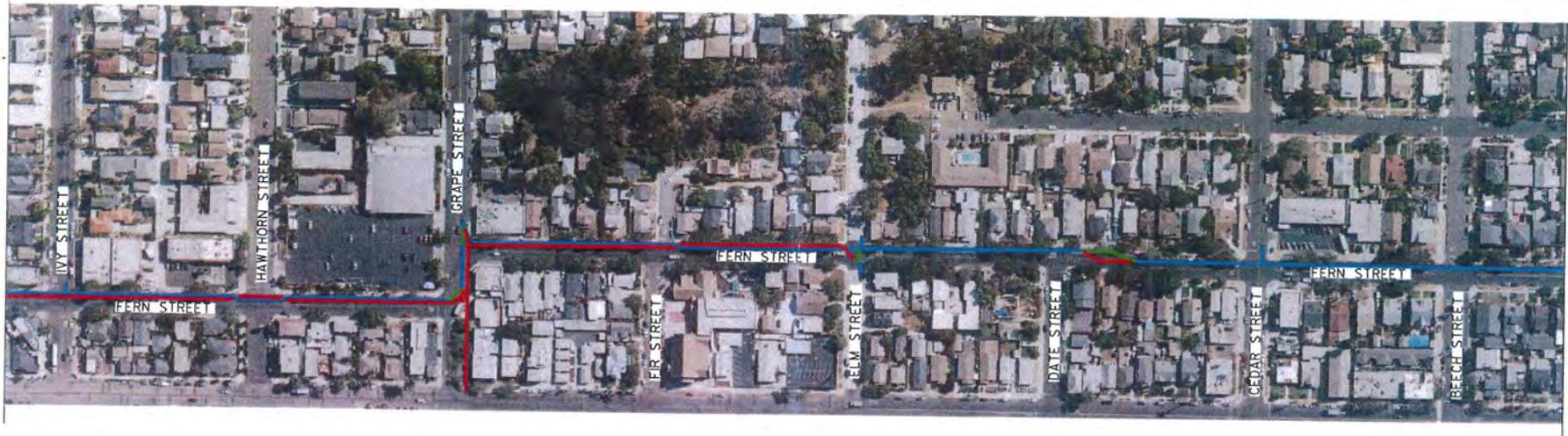
ORTHOMAP EXHIBIT 3



SCALE 1" = 200'

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MATCH LINE SEE EXHIBIT 3



MATCH LINE SEE EXHIBIT 5

LEGEND

- REPLACE IN PLACE
- REPLACE PARALLEL
- NEW MAIN (OPEN TRENCH)
- TRENCHLESS CONSTRUCTION
- PROPOSED ADANDONMENT

ORTHOMAP EXHIBIT 4



SCALE 1" = 200'

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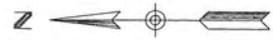


PROPOSED CONCRETE
BRIDGE VAULTS

LEGEND

- REPLACE IN PLACE
- REPLACE PARALLEL
- NEW MAIN (OPEN TRENCH)
- TRENCHLESS CONSTRUCTION
- PROPOSED ADANDONMENT

ORTHOMAP EXHIBIT 5



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MITIGATED NEGATIVE DECLARATION

Project No. 255100
SCH No. 2011091045

SUBJECT: Citywide Pipeline Projects: COUNCIL APPROVAL to allow for the replacement, rehabilitation, relocation, point repair, new trenching, trenchless construction, and abandonment of water and/or sewer pipeline alignments and associated improvements such as curb ramps, sewer lateral connections, water service connections, manholes, new pavement/slurry, the removal and/or replacement of street trees and the removal and/or replacement of street lights. This environmental document covers the analysis for ~~five~~ four (4) near-term pipeline projects (Harbor Drive Pipeline, Water Group 949, ~~Sewer Group 787~~, Water Group 914, and Sewer/Water Group 732), as well as any subsequent future pipeline projects. The construction footprint for a typical pipeline project, including staging areas and other areas (such as access) would be located within the City of San Diego Public Right-of-Way (PROW) and/or within public easements and may include planned pipeline construction within private easements from the PROW to the service connection. A signed agreement between the City and the property owner would be required for work conducted on private property. Project types that would be included in the analysis contained herein would consist of sewer and water group jobs, trunk sewers, large diameter water pipeline projects, new and/or replacement manholes, new/or replacement fire hydrants, and other necessary appurtenances. All associated equipment would be staged within the existing PROW adjacent to the work areas. The near-term and future projects covered in the document would not impact *Sensitive Biological Resources* or *Environmentally Sensitive Lands (ESL)* as defined in the Land Development Code and would not encroach into the City's Multi-Habitat Planning Area (MHPA). Applicant: The City of San Diego Engineering and Capital Projects Department AND Public Utilities Department.

Update 10/20/2011

Revisions to this document have been made when compared to the Draft Mitigated Negative Declaration (DMND) dated September 9, 2011. In response to the Comment Letter received from The California Department of Fish and Game, further description and graphics of Water Group 949 as it relates to the MHPA has been added to the Final MND. Please note that Sewer Group 787, which is adjacent to the MHPA, has been removed from the project description and is no longer covered in this MND.

The modifications to the FMND are denoted by ~~strikeout~~ and underline format. In accordance with the California Environmental Quality Act, Section 15073.5 (c)(4), the addition of new information that clarifies, amplifies, or makes insignificant modification does not require recirculation as there are no new impacts and no new mitigation identified. An environmental document need only be recirculated when there is identification of new significant environmental impact or the addition of a new mitigation measure required to avoid a significant environmental impact. The addition

of corrected mitigation language within the environmental document does not affect the environmental analysis or conclusions of the MND.

Construction for the near-term and any future projects is anticipated to occur during the daytime hours Monday through Friday, but may occur during the weekend, if necessary. The contractor would comply with all applicable requirements described in the latest edition of the *Standard Specifications for Public Works Construction ("GREENBOOK")* and the latest edition of the *City of San Diego Standard Specifications for Public Works Construction ("WHITEBOOK")*. The City's supplement addresses unique circumstances to the City of San Diego that are not addressed in the GREENBOOK and would therefore take precedence in the event of a conflict. The contractor would also comply with the California Department of Transportation *Manual of Traffic Controls for Construction and Maintenance Work Zones*. If the Average Daily Traffic (ADT) within a given project(s) vicinity is 10,000 ADT or greater, a traffic control plan would be prepared and implemented in accordance with the *City of San Diego Standard Drawings Manual of Traffic Control for Construction and Maintenance Work Zones*. For proposals subject to 10,000 ADT or less, traffic control may be managed through shop drawings during construction. Construction methods to be employed would consist of, but not be limited to:

Open Trenching: The open trench method of construction would be used for complete replacement and new alignment portions of the project. Trenches are typically four feet wide and are dug with excavations and similar large construction equipment.

Rehabilitation: Rehabilitation of alignment involves installing a new lining in old pipelines. The insertion is done through existing manhole access points and does not require removal of pavement or excavation of soils.

Abandonment: Pipeline abandonment activities would be similar to rehabilitation methods in that no surface/subsurface disturbance would occur. This process may involve slurry or grout material injected into the abandoned lines via manhole access. The top portion of the manhole is then typically removed and the remaining space backfilled and paved over.

Potholing: Potholing would be used to verify reconnection of laterals to main where lines would be raised or realigned (higher than existing depth, but still below ground) or to verify utility crossings. These "potholes" are made by using vacuum type equipment to open up small holes into the street of pavement.

Point Repairs: Point repairs include replacing a portion of a pipe segment by open trench excavation methods in which localized structural defects have been identified. Generally, point repairs are confined to an eight-foot section of pipe.

The following near term project(s) have been reviewed by the City of San Diego, Development Services Department (DSD) for compliance with the Land Development Code and have been determined to be exempt from a Site Development Permit (SDP) and/or a Coastal Development Permit (CDP). These projects would involve excavation in areas having a high resource sensitivity and potential for encountering archaeological and paleontological resources during construction related activities. Therefore, mitigation would be required to reduce potential significant impacts to archaeological and paleontological resources to below a level of significance. With respect to Storm Water, all projects would be reviewed for compliance with the City's Storm Water Standards

Manual. All projects that are not-exempt from the Standard Urban Storm Water Mitigation Plan (SUSMP) would incorporate appropriate Permanent Best Management Practices (BMPs) and construction BMPs into the project design(s) and during construction, as required. As such, all projects would comply with the requirement of the Municipal Storm Water Permit.

HARBOR DRIVE PIPELINE (PROJECT NO. 206100)

The Harbor Drive Pipeline includes the replacement of 4.4 miles of 16-inch cast iron (CI) and asbestos cement (AC) pipe that comprises the Harbor Drive 1st and 2nd Pipelines (HD-1 and HD-2) at a depth no greater than five (5) feet. Facility age and cast iron main replacement are the primary drivers for these projects, but due to the history of AC breaks in the area, approximately 1.0 mile of AC replacement is also included. The project is anticipated to be awarded in Fiscal Year 2013.

HD-1 and HD-2 were built primarily in the 1940's and 1950's and were made out of cast iron or asbestos cement and serve the western most part of the University Heights 390 Zone and the northern section of the Point Loma East 260 Zone. The pipelines also serve as redundancy to each other. Several segments were replaced by various City of San Diego Public Utilities Department projects throughout the years and those segments are not a part of the current scope. Previously replaced segments were 16 inch PVC, except for the bridge crossing which used 24-inch CMLC. The pipeline is located entirely within the PROW, will not require any easements, and is not adjacent to the MHPA or located within any designated historical districts. The following streets would be affected by this project: West Laurel, Pacific Highway, North Harbor Drive (within the roadway, under the bridge and within landscape areas), Nimitz Boulevard, Rosecrans Street, Evergreen Street, Hugo Street, Locust Street, Canon Street, Avenida De Portugal, and Point Loma Avenue.

Mitigation for the Harbor Drive Pipeline: Historical Resources (Archaeological Monitoring)

WATER GROUP 949 (PROJECT NO. 232719)

Water Group 949 would consist of the replacement and installation of 5.27 miles of water mains within the Skyline- Paradise Hills, University, Clairemont Mesa, Southeastern San Diego (Greater Golden Hills) community planning areas. 16,931 Linear Feet (LF) of 16-inch cast iron water mains would be replace-in-place with new 16-inch polyvinyl chloride (PVC) pipe within the existing trench. The remaining 10,913 LF of new 16-inch PVC would be installed in new trenches. All work within Regents Road, Site 2 (Figure 8), adjacent to the MHPA would only occur within the developed footprint such as the paved right of way, and concrete sidewalk or slab areas. In addition, all work within 100 feet of the MHPA would observe mitigation such as but not limited to, bird breeding season measures, avoidance of discharge into the MHPA, and avoidance of direct lighting towards the MHPA areas. As such, no impacts to MHPA and/or sensitive resources would occur. The project would also include replacement and reinstallation of valves, water services, fire hydrants, and other appurtenances and would also included the construction of curb ramps, and street resurfacing. Traffic control measures and Best Management Practices (BMPs) would be implemented during construction. Any street tree removal, relocation, and/or trimming would be done under the supervision of the City Arborist. All staging of construction equipment will be located outside of any potentially sensitive areas. The following streets and nearby alleyways would be affected by this project: Tuther Way, Cielo Drive, Woodman Street, Skyline Drive, Regents Road, Hidalgo Avenue, Clairemont Mesa Boulevard, Luna Avenue, B Street, F Street, Ash Street, 25th Street, and 27th Street.

Mitigation Required for Water Group 949: This project would require the implementation of MHPA Land Use Adjacency Guidelines in the University and Clairemont Mesa Community Planning areas that are adjacent (within 100 feet) to the MHPA and Historical Resources (Built Environment) mitigation for the area of the project located within the Greater Golden Hill Historic District.

SEWER GROUP 787 (PROJECT NO. 231928)

Sewer Group 787 would consist of the replacement of 26,436 lineal feet (LF) of existing 16-inch cast iron sewer pipe with new 16-inch polyvinyl chloride (PVC) pipe within the existing trench. A total of 1,267 LF of new 16-inch PVC sewer alignment would be installed in new trenches. In addition, the project would abandon 1,606 LF of existing 16-inch cast iron pipe. The proposed project would be installed by conventional excavation (open trench) in trenches from 3-5 feet deep. The project would affect the following streets and nearby alleyways: 42nd Street, Monroe Avenue, Edgware Road, Polk Avenue, Orange Avenue, Menlo Avenue, 47th Street, Dwight Street, Myrtle Avenue, Manzanita Place, Heather Street, Dahlia Street, Poplar Street, Columbine Street, Pepper Drive, Juniper Street, Marigold Street, Sumac Drive, 44th Street, Laurie Lane, and Roseview Place all within the City Heights and Kensington-Talmadge Community Planning Areas.

~~**Mitigation Required for Water Group 787: This project would require the implementation of MHPA Land Use Adjacency Guidelines in the City Heights and Kensington-Talmadge Community Planning areas that are adjacent (within 100 feet) to the MHPA, Historical Resources (Archaeological and Paleontological Monitoring).**~~

WATER GROUP 914 (PROJECT NO. 233447)

Water Group 914 would consist of the replacement and installation of approximately 21,729 lineal feet (LF) of existing 6-inch, 8-inch and 12-inch cast iron pipes and 6-inch asphalt concrete pipes with new 8-inch, 12-inch and 16-inch polyvinyl chloride (PVC) pipe. Also included would be the construction of two underground pressure regulator stations that measure 54 square-feet and 6.5 feet deep each. 17,472 LF would be located in existing trenches and 4,257 LF would be located in new trench lines. The proposed project would be installed by conventional excavation (open trench) in trenches from 3-5 feet deep. However two 300 LF parallel line sections (600 LF total) of the water alignment would be installed by trenchless methodology utilizing two (2) 40 square foot launch and receiver pits. The trenchless installation would occur at the intersection of Coronado Avenue and Ebers Street and is designed to avoid a recorded archaeological resource at this intersection. The trenchless methodology would employ directional underground boring that would install the pipe at a depth deeper than the recorded resource. In addition, a 4-inch AC water segment of approximately 520 LF located along Point Loma Avenue between Guizot Street and Santa Barbara Street will be abandoned in place. The project would affect the following streets and nearby alleyways: Point Loma Avenue, Santa Barbara Street, Bermuda Avenue, Pescadero Avenue, Cable Street, Orchard Avenue, Froude Street, Sunset Cliffs Boulevard, Savoy Circle, and Del Monte Avenue all within the Ocean Beach and Peninsula Community Planning Areas.

Mitigation for Water Group 914: Historical Resources (Archaeological Monitoring) and (Built Environment)

SEWER AND WATER GROUP 732 (PROJECT NO. 206610)

Sewer and Water Group Job 732 would consist of the installation of approximately 5,500 total linear feet (LF) of 8 inch Polyvinyl Chloride (PVC) sewer pipe, and approximately 3,000 total linear feet (LF) of 12 inch PVC water pipe. Approximately, 1,035 LF of water pipe would be rehabilitated using trenchless technology in the same trench, with the remainder of the installation accomplished through open trenching. Related work would include construction of new manholes, replacement and re-plumbing of sewer laterals, installation of curb ramps, pavement restoration, traffic control, and storm water best management practices. Construction of the project would affect portions of the following streets and adjacent alleys in the Peninsula Community Plan area: Xenophon Street, Yonge Street, Zola Street, Alcott Street, Browning Street, Plum Street, Willow Street, Evergreen Street, Locust Street, and Rosecrans Street.

Mitigation Required for Sewer and Water Group 732: Historical Resources (Archaeological and Paleontological Monitoring).

SUBSEQUENT PIPELINE PROJECT REVIEW (LONG TERM)

Applications for the replacement, rehabilitation, relocation, point repair, open trenching and abandonment of water and/or sewer pipeline alignments within the City of San Diego PROW as indicated in the Subject block above and in the Project Description discussion of the Initial Study would be analyzed for potential environmental impacts to Historical Resources (Archaeology, Paleontology and the Built Environment) and Land Use (MSCP/MHPA), and reviewed for consistency with this Mitigated Negative Declaration (MND). Where it can be determined that the project is “consistent” with this MND and no additional potential significant impacts would occur pursuant to State CEQA Guideline § 15162 (i.e. the involvement of new significant environmental effects of a substantial increase in the severity of previously identified effects) or if the project would result in minor technical changes or additions, then an Addendum to this MND would be prepared pursuant to §15164. Where future projects are found not to be consistent with this MND, then a new Initial Study and project specific MND shall be prepared.

- I. PROJECT DESCRIPTION: See attached Initial Study.
- II. ENVIRONMENTAL SETTING: See attached Initial Study.
- III. DETERMINATION:

The City of San Diego conducted an Initial Study which determined that the near term projects and any future subsequent projects could have a significant environmental effect in the following area(s): Land Use (MSCP/MHPA Land Use Adjacency), Historical Resources (Built Environment), Historical Resources (Archaeology) and Paleontology. When subsequent projects are submitted to DSD, the Environmental Analysis Section (EAS) will determine which of the project specific mitigation measures listed in Section V. would apply. Subsequent revisions in the project proposal create the specific mitigation identified in Section V of this Mitigated Negative Declaration. Projects as revised now avoid or mitigate the potentially significant environmental effects previously identified, and the preparation of an Environmental Impact Report will not be required.

IV. DOCUMENTATION:

The attached Initial Study documents the reasons to support the above Determination.

V. MITIGATION, MONITORING AND REPORTING PROGRAM (MMRP):

A. GENERAL REQUIREMENTS – PART I

Plan Check Phase (prior to permit issuance)

1. Prior to Bid Opening/Bid Award or beginning any construction related activity on-site, the Development Services Department (DSD) Director's Environmental Designee (ED) shall review and approve all Construction Documents (CD) (plans, specification, details, etc.) to ensure the MMRP requirements have been incorporated.
2. In addition, the ED shall verify that the MMRP Conditions/Notes that apply ONLY to the construction phases of this project are included VERBATIM, under the heading, "ENVIRONMENTAL/MITIGATION REQUIREMENTS."
3. These notes must be shown within the first three (3) sheets of the construction documents in the format specified for engineering construction document templates as shown on the City website:

<http://www.sandiego.gov/development-services/industry/standtemp.shtml>

4. The **TITLE INDEX SHEET** must also show on which pages the "Environmental/Mitigation Requirements" notes are provided.

B. GENERAL REQUIREMENTS – PART II

Post Plan Check (After permit issuance/Prior to start of construction)

1. **PRE CONSTRUCTION MEETING IS REQUIRED TEN (10) WORKING DAYS PRIOR TO BEGINNING ANY WORK ON THIS PROJECT.** The PERMIT HOLDER/OWNER is responsible to arrange and perform this meeting by contacting the CITY RESIDENT ENGINEER (RE) of the Field Engineering Division and City staff from MITIGATION MONITORING COORDINATION (MMC). Attendees must also include the Permit holder's Representative(s), Job Site Superintendent and the following consultants as necessary:

Biologist, Archaeologist, Native American Monitor, Historian and Paleontologist

Note: Failure of all responsible Permit Holder's representatives and consultants to attend shall require an additional meeting with all parties present.

CONTACT INFORMATION:

- a) The PRIMARY POINT OF CONTACT is the **RE** at the **Field Engineering Division 858-627-3200**
- b) For Clarification of ENVIRONMENTAL REQUIREMENTS, it is also required to call **RE and MMC at 858-627-3360**

2. MMRP COMPLIANCE: This Project, Project Tracking System (PTS) No. 255100, or for subsequent future projects the associated PTS No, shall conform to the mitigation requirements contained in the associated Environmental Document and implemented to the satisfaction of the DSD’s ED, MMC and the City Engineer (RE). The requirements may not be reduced or changed but may be annotated (i.e. to explain when and how compliance is being met and location of verifying proof, etc.). Additional clarifying information may also be added to other relevant plan sheets and/or specifications as appropriate (i.e., specific locations, times of monitoring, methodology, etc

Note:

Permit Holder’s Representatives must alert RE and MMC if there are any discrepancies in the plans or notes, or any changes due to field conditions. All conflicts must be approved by RE and MMC BEFORE the work is performed.

- 3. OTHER AGENCY REQUIREMENTS:** Evidence that any other agency requirements or permits have been obtained or are in process shall be submitted to the RE and MMC for review and acceptance prior to the beginning of work or within one week of the Permit Holder obtaining documentation of those permits or requirements. Evidence shall include copies of permits, letters of resolution or other documentation issued by the responsible agency as applicable.
- 4. MONITORING EXHIBITS:** All consultants are required to submit, to RE and MMC, a monitoring exhibit on a 11x17 reduction of the appropriate construction plan, such as site plan, grading, landscape, etc., marked to clearly show the specific areas including the **LIMIT OF WORK**, scope of that discipline’s work, and notes indicating when in the construction schedule that work will be performed. When necessary for clarification, a detailed methodology of how the work will be performed shall be included.
- 5. OTHER SUBMITTALS AND INSPECTIONS:** The Permit Holder/Owner’s representative shall submit all required documentation, verification letters, and requests for all associated inspections to the RE and MMC for approval per the following schedule:

Document Submittal/Inspection Checklist

<i>Issue Area</i>	<i>Document submittal</i>	<i>Associated Inspection/Approvals/Note</i>
General	Consultant Qualification Letters	Prior to Pre-construction Mtg.
General	Consultant Const. Monitoring	Prior to or at Pre-Construction Mtg.
Biology	Biology Reports	Limit of Work Verification
Historical	Historical Reports	Historical observation (built environmt)
Archaeology	Archaeology Reports	Archaeology observation
Paleontology	Paleontology Reports	Paleontology observation
Final MMRP		Final MMRP Inspection

SPECIFIC MMRP ISSUE AREA CONDITIONS/REQUIREMENTS:

A. LAND USE [MULTIPLE SPECIES CONSERVATION PROGRAM (MSCP) For PROJECTS WITHIN 100 FEET OF THE MHPA]**I. Prior to Permit Issuance**

- A. Prior to issuance of any construction permit, the DSD Environmental Designee (ED) shall verify the Applicant has accurately represented the project's design in the Construction Documents (CDs) that are in conformance with the associated discretionary permit conditions and Exhibit "A", and also the City's Multi-Species Conservation Program (MSCP) Land Use Adjacency Guidelines for the Multiple Habitat Planning Area (MHPA), including identifying adjacency as the potential for direct/indirect impacts where applicable. In addition, all CDs where applicable shall show the following:
- 1. Land Development / Grading / Boundaries** –MHPA boundaries on-site and adjacent properties shall be delineated on the CDs. The ED shall ensure that all grading is included within the development footprint, specifically manufactured slopes, disturbance, and development within or adjacent to the MHPA..
 - 2. Drainage / Toxins** –All new and proposed parking lots and developed area in and adjacent to the MHPA shall be designed so they do not drain directly into the MHPA, All developed and paved areas must prevent the release of toxins, chemicals, petroleum products, exotic plant materials prior to release by incorporating the use of filtration devices, planted swales and/or planted detention/desiltation basins, or other approved permanent methods that are designed to minimize negative impacts, such as excessive water and toxins into the ecosystems of the MHPA.
 - 3. Staging/storage, equipment maintenance, and trash** –All areas for staging, storage of equipment and materials, trash, equipment maintenance, and other construction related activities are within the development footprint. Provide a note on the plans that states: "*All construction related activity that may have potential for leakage or intrusion shall be monitored by the Qualified Biologist/Owners Representative to ensure there is no impact to the MHPA.*"
 - 4. Barriers** –All new development within or adjacent to the MHPA shall provide fencing or other City approved barriers along the MHPA boundaries to direct public access to appropriate locations, to reduce domestic animal predation, and to direct wildlife to appropriate corridor crossing. Permanent barriers may include, but are not limited to, fencing (6-foot black vinyl coated chain link or equivalent), walls, rocks/boulders, vegetated buffers, and signage for access, litter, and educational purposes.
 - 5. Lighting** – All building, site, and landscape lighting adjacent to the MHPA shall be directed away from the preserve using proper placement and adequate shielding to protect sensitive habitat. Where necessary, light from traffic or other incompatible uses, shall be shielded from the MHPA through the utilization of including, but not limited to, earth berms, fences, and/or plant material.
 - 6. Invasive Plants** – Plant species within 100 feet of the MHPA shall comply with the Landscape Regulations (LDC142.0400 and per table 142-04F, Revegetation and Irrigation Requirements) and be non invasive. Landscape plans shall include a note that states: "*The ongoing maintenance requirements of the property owner shall*

prohibit the use of any planting that are invasive, per City Regulations, Standards, guidelines, etc., within 100 feet of the MHPA."

7. **Brush Management** –All new development adjacent to the MHPA is set back from the MHPA to provide the required Brush Management Zone (BMZ) 1 area (LDC Sec. 142.0412) within the development area and outside of the MHPA. BMZ 2 may be located within the MHPA and the BMZ 2 management shall be the responsibility of a HOA or other private entity.
8. **Noise-** Due to the site's location adjacent to or within the MHPA, construction noise that exceeds the maximum levels allowed shall be avoided, during the breeding seasons for protected avian species such as: *California Gnatcatcher* (3/1-8/15); *Least Bell's vireo* (3/15-9/15); and *Southwestern Willow Flycatcher* (5/1-8/30). If construction is proposed during the breeding season for the species, U.S. Fish and Wildlife Service protocol surveys shall be required in order to determine species presence/absence. When applicable, adequate noise reduction measures shall be incorporated. Upon project submittal EAS shall determine which of the following project specific avian protocol surveys shall be required.

COASTAL CALIFORNIA GNATCATCHER

NO CLEARING, GRUBBING, GRADING, OR OTHER CONSTRUCTION ACTIVITIES SHALL OCCUR BETWEEN MARCH 1 AND AUGUST 15, THE BREEDING SEASON OF THE COASTAL CALIFORNIA GNATCATCHER, UNTIL THE FOLLOWING REQUIREMENTS HAVE BEEN MET TO THE SATISFACTION OF THE CITY MANAGER:

- a. A QUALIFIED BIOLOGIST (POSSESSING A VALID ENDANGERED SPECIES ACT SECTION 10(a)(1)(A) RECOVERY PERMIT) SHALL SURVEY THOSE HABITAT AREAS WITHIN ADJACENT TO THE MHPA THAT WOULD BE SUBJECT TO CONSTRUCTION NOISE LEVELS EXCEEDING 60 DECIBELS [dB(A)] HOURLY AVERAGE FOR THE PRESENCE OF THE COASTAL CALIFORNIA GNATCATCHER. SURVEYS FOR THE COASTAL CALIFORNIA GNATCATCHER SHALL BE CONDUCTED PURSUANT TO THE PROTOCOL SURVEY GUIDELINES ESTABLISHED BY THE U.S. FISH AND WILDLIFE SERVICE WITHIN THE BREEDING SEASON PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION. IF GNATCATCHERS ARE PRESENT, THEN THE FOLLOWING CONDITIONS MUST BE MET:

BETWEEN MARCH 1 AND AUGUST 15, NO CLEARING, GRUBBING, OR GRADING OF OCCUPIED GNATCATCHER HABITAT SHALL BE PERMITTED. AREAS RESTRICTED FROM SUCH ACTIVITIES SHALL BE STAKED OR FENCED UNDER THE SUPERVISION OF A QUALIFIED BIOLOGIST; AND

1. BETWEEN MARCH 1 AND AUGUST 15, NO CONSTRUCTION ACTIVITIES SHALL OCCUR WITHIN ANY PORTION OF THE SITE WHERE CONSTRUCTION ACTIVITIES WOULD RESULT IN NOISE LEVELS EXCEEDING 60 dB(A) HOURLY AVERAGE AT THE EDGE OF OCCUPIED GNATCATCHER HABITAT. AN ANALYSIS SHOWING THAT NOISE GENERATED BY CONSTRUCTION

ACTIVITIES WOULD NOT EXCEED 60 dB(A) HOURLY AVERAGE AT THE EDGE OF OCCUPIED HABITAT MUST BE COMPLETED BY A QUALIFIED ACOUSTICIAN (POSSESSING CURRENT NOISE ENGINEER LICENSE OR REGISTRATION WITH MONITORING NOISE LEVEL EXPERIENCE WITH LISTED ANIMAL SPECIES) AND APPROVED BY THE CITY MANAGER AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES DURING THE BREEDING SEASON, AREAS RESTRICTED FROM SUCH ACTIVITIES SHALL BE STAKED OR FENCED UNDER THE SUPERVISION OF A QUALIFIED BIOLOGIST; OR

2. AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES, UNDER THE DIRECTION OF A QUALIFIED ACOUSTICIAN, NOISE ATTENUATION MEASURES (e.g., BERMS, WALLS) SHALL BE IMPLEMENTED TO ENSURE THAT NOISE LEVELS RESULTING FROM CONSTRUCTION ACTIVITIES WILL NOT EXCEED 60 dB(A) HOURLY AVERAGE AT THE EDGE OF HABITAT OCCUPIED BY THE COASTAL CALIFORNIA GNATCATCHER. CONCURRENT WITH THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES AND THE CONSTRUCTION OF NECESSARY NOISE ATTENUATION FACILITIES, NOISE MONITORING* SHALL BE CONDUCTED AT THE EDGE OF THE OCCUPIED HABITAT AREA TO ENSURE THAT NOISE LEVELS DO NOT EXCEED 60 dB(A) HOURLY AVERAGE. IF THE NOISE ATTENUATION TECHNIQUES IMPLEMENTED ARE DETERMINED TO BE INADEQUATE BY THE QUALIFIED ACOUSTICIAN OR BIOLOGIST, THEN THE ASSOCIATED CONSTRUCTION ACTIVITIES SHALL CEASE UNTIL SUCH TIME THAT ADEQUATE NOISE ATTENUATION IS ACHIEVED OR UNTIL THE END OF THE BREEDING SEASON (AUGUST 16).

* Construction noise monitoring shall continue to be monitored at least twice weekly on varying days, or more frequently depending on the construction activity, to verify that noise levels at the edge of occupied habitat are maintained below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. If not, other measures shall be implemented in consultation with the biologist and the City Manager, as necessary, to reduce noise levels to below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. Such measures may include, but are not limited to, limitations on the placement of construction equipment and the simultaneous use of equipment.

- b. IF COASTAL CALIFORNIA GNATCATCHERS ARE NOT DETECTED DURING THE PROTOCOL SURVEY, THE QUALIFIED BIOLOGIST SHALL SUBMIT SUBSTANTIAL EVIDENCE TO THE CITY MANAGER AND APPLICABLE RESOURCE AGENCIES WHICH DEMONSTRATES WHETHER OR NOT MITIGATION MEASURES SUCH AS NOISE WALLS ARE NECESSARY BETWEEN MARCH 1 AND AUGUST 15 AS FOLLOWS:

1. IF THIS EVIDENCE INDICATES THE POTENTIAL IS HIGH FOR COASTAL CALIFORNIA GNATCATCHER TO BE PRESENT BASED ON HISTORICAL RECORDS OR SITE CONDITIONS, THEN CONDITION A.III SHALL BE ADHERED TO AS SPECIFIED ABOVE.
2. IF THIS EVIDENCE CONCLUDES THAT NO IMPACTS TO THIS SPECIES ARE ANTICIPATED, NO MITIGATION MEASURES WOULD BE NECESSARY.

LEAST BELL'S VIREO (State Endangered/Federally Endangered)

NO CLEARING, GRUBBING, GRADING, OR OTHER CONSTRUCTION ACTIVITIES SHALL OCCUR BETWEEN MARCH 15 AND SEPTEMBER 15, THE BREEDING SEASON OF THE LEAST BELL'S VIREO, UNTIL THE FOLLOWING REQUIREMENTS HAVE BEEN MET TO THE SATISFACTION OF THE CITY MANAGER:

- A. A QUALIFIED BIOLOGIST (POSSESSING A VALID ENDANGERED SPECIES ACT SECTION 10(a)(1)(A) RECOVERY PERMIT) SHALL SURVEY THOSE WETLAND AREAS THAT WOULD BE SUBJECT TO CONSTRUCTION NOISE LEVELS EXCEEDING 60 DECIBELS [dB(A)] HOURLY AVERAGE FOR THE PRESENCE OF THE LEAST BELL'S VIREO. SURVEYS FOR THE THIS SPECIES SHALL BE CONDUCTED PURSUANT TO THE PROTOCOL SURVEY GUIDELINES ESTABLISHED BY THE U.S. FISH AND WILDLIFE SERVICE WITHIN THE BREEDING SEASON PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. IF THE LEAST BELL'S VIREO IS PRESENT, THEN THE FOLLOWING CONDITIONS MUST BE MET:

BETWEEN MARCH 15 AND SEPTEMBER 15, NO CLEARING, GRUBBING, OR GRADING OF OCCUPIED LEAST BELL'S VIREO HABITAT SHALL BE PERMITTED. AREAS RESTRICTED FROM SUCH ACTIVITIES SHALL BE STAKED OR FENCED UNDER THE SUPERVISION OF A QUALIFIED BIOLOGIST; AND

BETWEEN MARCH 15 AND SEPTEMBER 15, NO CONSTRUCTION ACTIVITIES SHALL OCCUR WITHIN ANY PORTION OF THE SITE WHERE CONSTRUCTION ACTIVITIES WOULD RESULT IN NOISE LEVELS EXCEEDING 60 dB(A) HOURLY AVERAGE AT THE EDGE OF OCCUPIED LEAST BELL'S VIREO OR HABITAT. AN ANALYSIS SHOWING THAT NOISE GENERATED BY CONSTRUCTION ACTIVITIES WOULD NOT EXCEED 60 dB(A) HOURLY AVERAGE AT THE EDGE OF OCCUPIED HABITAT MUST BE COMPLETED BY A QUALIFIED ACOUSTICIAN (POSSESSING CURRENT NOISE ENGINEER LICENSE OR REGISTRATION WITH MONITORING NOISE LEVEL EXPERIENCE WITH LISTED ANIMAL SPECIES) AND APPROVED BY THE CITY MANAGER AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES. PRIOR TO THE COMMENCEMENT OF ANY OF CONSTRUCTION ACTIVITIES DURING THE BREEDING SEASON, AREAS RESTRICTED FROM SUCH ACTIVITIES SHALL BE STAKED OR FENCED

UNDER THE SUPERVISION OF A QUALIFIED BIOLOGIST; OR

AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES, UNDER THE DIRECTION OF A QUALIFIED ACOUSTICIAN, NOISE ATTENUATION MEASURES (e.g., BERMS, WALLS) SHALL BE IMPLEMENTED TO ENSURE THAT NOISE LEVELS RESULTING FROM CONSTRUCTION ACTIVITIES WILL NOT EXCEED 60 dB(A) HOURLY AVERAGE AT THE EDGE OF HABITAT OCCUPIED BY THE LEAST BELL'S VIREO. CONCURRENT WITH THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES AND THE CONSTRUCTION OF NECESSARY NOISE ATTENUATION FACILITIES, NOISE MONITORING* SHALL BE CONDUCTED AT THE EDGE OF THE OCCUPIED HABITAT AREA TO ENSURE THAT NOISE LEVELS DO NOT EXCEED 60 dB(A) HOURLY AVERAGE. IF THE NOISE ATTENUATION TECHNIQUES IMPLEMENTED ARE DETERMINED

TO BE INADEQUATE BY THE QUALIFIED ACOUSTICIAN OR BIOLOGIST, THEN THE ASSOCIATED CONSTRUCTION ACTIVITIES SHALL CEASE UNTIL SUCH TIME THAT ADEQUATE NOISE ATTENUATION IS ACHIEVED OR UNTIL THE END OF THE BREEDING SEASON (SEPTEMBER 16).

* Construction noise monitoring shall continue to be monitored at least twice weekly on varying days, or more frequently depending on the construction activity, to verify that noise levels at the edge of occupied habitat are maintained below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. If not, other measures shall be implemented in consultation with the biologist and the City Manager, as necessary, to reduce noise levels to below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. Such measures may include, but are not limited to, limitations on the placement of construction equipment and the simultaneous use of equipment.

- B. IF LEAST BELL'S VIREO ARE NOT DETECTED DURING THE PROTOCOL SURVEY, THE QUALIFIED BIOLOGIST SHALL SUBMIT SUBSTANTIAL EVIDENCE TO THE CITY MANAGER AND APPLICABLE RESOURCE AGENCIES WHICH DEMONSTRATES WHETHER OR NOT MITIGATION MEASURES SUCH AS NOISE WALLS ARE NECESSARY BETWEEN MARCH 15 AND SEPTEMBER 15 AS FOLLOWS:
- I. IF THIS EVIDENCE INDICATES THE POTENTIAL IS HIGH FOR LEAST BELL'S VIREO TO BE PRESENT BASED ON HISTORICAL RECORDS OR SITE CONDITIONS, THEN CONDITION A.III SHALL BE ADHERED TO AS SPECIFIED ABOVE.
 - II. IF THIS EVIDENCE CONCLUDES THAT NO IMPACTS TO THIS SPECIES ARE ANTICIPATED, NO MITIGATION MEASURES WOULD BE NECESSARY.

SOUTHWESTERN WILLOW FLYCATCHER (Federally Endangered)

1. Prior to the first reconstruction meeting, the City Manager (or appointed designee) shall verify that the following project requirements regarding the southwestern willow flycatcher are shown on the construction plans:

NO CLEARING, GRUBBING, GRADING, OR OTHER CONSTRUCTION ACTIVITIES SHALL OCCUR BETWEEN MAY 1 AND SEPTEMBER 1, THE BREEDING SEASON OF THE SOUTHWESTERN WILLOW FLYCATCHER, UNTIL

THE FOLLOWING REQUIREMENTS HAVE BEEN MET TO THE SATISFACTION OF THE CITY MANAGER:

- A. A QUALIFIED BIOLOGIST (POSSESSING A VALID ENDANGERED SPECIES ACT SECTION 10(a)(1)(A) RECOVERY PERMIT) SHALL SURVEY THOSE WETLAND AREAS THAT WOULD BE SUBJECT TO CONSTRUCTION NOISE LEVELS EXCEEDING 60 DECIBELS [dB(A)] HOURLY AVERAGE FOR THE PRESENCE OF THE SOUTHWESTERN WILLOW FLYCATCHER. SURVEYS FOR THIS SPECIES SHALL BE CONDUCTED PURSUANT TO THE PROTOCOL SURVEY GUIDELINES ESTABLISHED BY THE U.S. FISH AND WILDLIFE SERVICE WITHIN THE BREEDING SEASON PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION. IF THE SOUTHWESTERN WILLOW FLYCATCHER IS PRESENT, THEN THE FOLLOWING CONDITIONS MUST BE MET:

BETWEEN MAY 1 AND SEPTEMBER 1, NO CLEARING, GRUBBING, OR GRADING OF OCCUPIED SOUTHWESTERN WILLOW FLYCATCHER HABITAT SHALL BE PERMITTED. AREAS RESTRICTED FROM SUCH ACTIVITIES SHALL BE STAKED OR FENCED UNDER THE SUPERVISION OF A QUALIFIED BIOLOGIST; AND

BETWEEN MAY 1 AND SEPTEMBER 1, NO CONSTRUCTION ACTIVITIES SHALL OCCUR WITHIN ANY PORTION OF THE SITE WHERE CONSTRUCTION ACTIVITIES WOULD RESULT IN NOISE LEVELS EXCEEDING 60 dB(A) HOURLY AVERAGE AT THE EDGE OF OCCUPIED SOUTHWESTERN WILLOW FLYCATCHER HABITAT. AN ANALYSIS SHOWING THAT NOISE GENERATED BY CONSTRUCTION ACTIVITIES WOULD NOT EXCEED 60 dB(A) HOURLY AVERAGE AT THE EDGE OF OCCUPIED HABITAT MUST BE COMPLETED BY A QUALIFIED ACOUSTICIAN (POSSESSING CURRENT NOISE ENGINEER LICENSE OR REGISTRATION WITH MONITORING NOISE LEVEL EXPERIENCE WITH LISTED ANIMAL SPECIES) AND APPROVED BY THE CITY MANAGER AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES DURING THE BREEDING SEASON, AREAS RESTRICTED FROM SUCH ACTIVITIES SHALL BE STAKED OR FENCED UNDER THE SUPERVISION OF A QUALIFIED BIOLOGIST; OR AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES, UNDER THE DIRECTION OF A QUALIFIED ACOUSTICIAN.

NOISE ATTENUATION MEASURES (e.g., BERMS, WALLS) SHALL BE IMPLEMENTED TO ENSURE THAT NOISE LEVELS RESULTING FROM CONSTRUCTION ACTIVITIES WILL NOT EXCEED 60 dB(A) HOURLY AVERAGE AT THE EDGE OF HABITAT OCCUPIED BY THE SOUTHWESTERN WILLOW FLYCATCHER. CONCURRENT WITH THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES AND THE CONSTRUCTION OF NECESSARY NOISE ATTENUATION FACILITIES, NOISE MONITORING* SHALL BE CONDUCTED AT THE EDGE OF THE OCCUPIED HABITAT AREA TO ENSURE THAT NOISE LEVELS DO NOT EXCEED 60 dB(A) HOURLY AVERAGE. IF THE NOISE ATTENUATION TECHNIQUES IMPLEMENTED ARE DETERMINED TO BE INADEQUATE BY THE QUALIFIED ACOUSTICIAN OR BIOLOGIST, THEN THE ASSOCIATED CONSTRUCTION ACTIVITIES SHALL CEASE UNTIL SUCH TIME THAT ADEQUATE NOISE ATTENUATION IS ACHIEVED OR UNTIL THE END OF THE BREEDING SEASON (SEPTEMBER 1).

* Construction noise monitoring shall continue to be monitored at least twice weekly on varying days, or more frequently depending on the construction activity, to verify that noise levels at the edge of occupied habitat are maintained below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. If not, other measures shall be implemented in consultation with the biologist and the City Manager, as necessary, to reduce noise levels to below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. Such measures may include, but are not limited to, limitations on the placement of construction equipment and the simultaneous use of equipment.

- B. IF SOUTHWESTERN WILLOW FLYCATCHER ARE NOT DETECTED DURING THE PROTOCOL SURVEY, THE QUALIFIED BIOLOGIST SHALL SUBMIT SUBSTANTIAL EVIDENCE TO THE CITY MANAGER AND APPLICABLE RESOURCE AGENCIES WHICH DEMONSTRATES WHETHER OR NOT MITIGATION MEASURES SUCH AS NOISE WALLS ARE NECESSARY BETWEEN MAY 1 AND SEPTEMBER 1 AS FOLLOWS:
- I. IF THIS EVIDENCE INDICATES THE POTENTIAL IS HIGH FOR SOUTHWESTERN WILLOW FLYCATCHER TO BE PRESENT BASED ON HISTORICAL RECORDS OR SITE CONDITIONS, THEN CONDITION A.III SHALL BE ADHERED TO AS SPECIFIED ABOVE.
 - II. IF THIS EVIDENCE CONCLUDES THAT NO IMPACTS TO THIS SPECIES ARE ANTICIPATED, NO MITIGATION MEASURES WOULD BE NECESSARY.

II. Prior to Start of Construction

A. Preconstruction Meeting

The Qualified Biologist/Owners Representative shall incorporate all MHPA construction related requirements, into the project's Biological Monitoring Exhibit (BME).

The Qualified Biologist/Owners Representative is responsible to arrange and perform a focused pre-con with all contractors, subcontractors, and all workers involved in grading or other construction activities that discusses the sensitive nature of the adjacent sensitive biological resources.

III. During Construction

- A. The Qualified Biologist/Owners Representative, shall verify that all construction related activities taking place ~~within or~~ adjacent to the MHPA are consistent with the CDs, the MSCP/MHPA Land Use Adjacency Guidelines. The Qualified Biologist/Owners Representative shall monitor and ensure that:
1. **Land Development /Grading Boundaries** - The MHPA boundary and the limits of grading shall be clearly delineated by a survey crew prior to brushing, clearing, or grading. Limits shall be defined with orange construction fence and a siltation fence (can be combined) under the supervision of the Qualified Biologist/Owners Representative who shall provide a letter of verification to RE/MMC that all limits were marked as required. ~~Within or a~~Adjacent to the MHPA, all manufactured slopes associated with site development shall be included within the development footprint.
 2. **Drainage/Toxics** - No Direct drainage into the MHPA shall occur during or after construction and that filtration devices, swales and/or detention/desiltation basins that drain into the MHPA are functioning properly during construction, and that permanent maintenance after construction is addressed. These systems should be maintained approximately once a year, or as often a needed, to ensure proper functioning. Maintenance should include dredging out sediments if needed, removing exotic plant materials, and adding chemical-neutralizing compounds (e.g. clay compounds) when necessary and appropriate.
 3. **Staging/storage, equipment maintenance, and trash** - Identify all areas for staging, storage of equipment and materials, trash, equipment maintenance, and other construction related activities on the monitoring exhibits and verify that they are within the development footprint. Comply with the applicable notes on the plans
 - 4 **Barriers** - New development adjacent to the MHPA provides city approved barriers along the MHPA boundaries
 5. **Lighting** - Periodic night inspections are performed to verify that all lighting adjacent to the MHPA is directed away from preserve areas and appropriate placement and shielding is used.
 6. **Invasives** - No invasive plant species are used ~~in or~~ adjacent (within 100 feet) to the MHPA ~~and that within the MHPA, all plant species must be native.~~
 7. **Brush Management** - BMZ1 is within the development footprint and outside of the MHPA, and that maintenance responsibility for the BMZ 2 located within the MHPA is identified as the responsibility of an HOA or other private entity.
 8. **Noise** – For any area of the site that is adjacent to ~~or within~~ the MHPA, construction noise that exceeds the maximum levels allowed, shall be avoided, during the breeding seasons, for protected avian species such as: *California Gnatcatcher* (3/1-8/15); *Least Bell's vireo* (3/15-9/15); and *Southwestern Willow Flycatcher* (5/1-8/30). If construction is proposed during the breeding season for the species, U.S. Fish and Wildlife Service protocol surveys will be required in order to determine species presence/absence. When applicable, adequate noise reduction measures shall

be incorporated.

IV. Post Construction

A. Preparation and Submittal of Monitoring Report

The Qualified Biologist/Owners Representative shall submit a final biological monitoring report to the RE/MMC within 30 days of the completion of construction that requires monitoring. The report shall incorporate the results of the MMRP/MSCP requirements per the construction documents and the BME to the satisfaction of RE/MMC.

B. HISTORICAL RESOURCES (ARCHAEOLOGY)

Prior to Permit Issuance or Bid Opening/Bid Award

A. Entitlements Plan Check

1. Prior to permit issuance or Bid Opening/Bid Award, whichever is applicable, the Assistant Deputy Director (ADD) Environmental designee shall verify that the requirements for Archaeological Monitoring and Native American monitoring have been noted on the applicable construction documents through the plan check process.

B. Letters of Qualification have been submitted to ADD

1. Prior to Bid Award, the applicant shall submit a letter of verification to Mitigation Monitoring Coordination (MMC) identifying the Principal Investigator (PI) for the project and the names of all persons involved in the archaeological monitoring program, as defined in the City of San Diego Historical Resources Guidelines (HRG). If applicable, individuals involved in the archaeological monitoring program must have completed the 40-hour HAZWOPER training with certification documentation.
2. MMC will provide a letter to the applicant confirming the qualifications of the PI and all persons involved in the archaeological monitoring of the project meet the qualifications established in the HRG.
3. Prior to the start of work, the applicant must obtain written approval from MMC for any personnel changes associated with the monitoring program.

II. Prior to Start of Construction

A. Verification of Records Search

1. The PI shall provide verification to MMC that a site specific records search (1/4 mile radius) has been completed. Verification includes, but is not limited to a copy of a confirmation letter from South Coastal Information Center, or, if the search was in-house, a letter of verification from the PI stating that the search was completed.
2. The letter shall introduce any pertinent information concerning expectations and probabilities of discovery during trenching and/or grading activities.
3. The PI may submit a detailed letter to MMC requesting a reduction to the 1/4 mile radius.

B. PI Shall Attend Precon Meetings

1. Prior to beginning any work that requires monitoring; the Applicant shall arrange a Precon Meeting that shall include the PI, Native American consultant/monitor (where Native American resources may be impacted), Construction Manager (CM)

- and/or Grading Contractor, Resident Engineer (RE), Building Inspector (BI), if appropriate, and MMC. The qualified Archaeologist and Native American Monitor shall attend any grading/excavation related Precon Meetings to make comments and/or suggestions concerning the Archaeological Monitoring program with the Construction Manager and/or Grading Contractor.
- a. If the PI is unable to attend the Precon Meeting, the Applicant shall schedule a focused Precon Meeting with MMC, the PI, RE, CM or BI, if appropriate, prior to the start of any work that requires monitoring.
2. Acknowledgement of Responsibility for Curation (CIP or Other Public Projects)
The applicant shall submit a letter to MMC acknowledging their responsibility for the cost of curation associated with all phases of the archaeological monitoring program.
 3. Identify Areas to be Monitored
 - b. Prior to the start of any work that requires monitoring, the PI shall submit an Archaeological Monitoring Exhibit (AME) (with verification that the AME has been reviewed and approved by the Native American consultant/monitor when Native American resources may be impacted) based on the appropriate construction documents (reduced to 11x17) to MMC identifying the areas to be monitored including the delineation of grading/excavation limits.
 - c. The AME shall be based on the results of a site specific records search as well as information regarding the age of existing pipelines, laterals and associated appurtenances and/or any known soil conditions (native or formation).
 - d. MMC shall notify the PI that the AME has been approved.
 4. When Monitoring Will Occur
 - a. Prior to the start of any work, the PI shall also submit a construction schedule to MMC through the RE indicating when and where monitoring will occur.
 - b. The PI may submit a detailed letter to MMC prior to the start of work or during construction requesting a modification to the monitoring program. This request shall be based on relevant information such as review of final construction documents which indicate conditions such as age of existing pipe to be replaced, depth of excavation and/or site graded to bedrock, etc., which may reduce or increase the potential for resources to be present.
 5. Approval of AME and Construction Schedule
After approval of the AME by MMC, the PI shall submit to MMC written authorization of the AME and Construction Schedule from the CM.

III. During Construction

- A. Monitor Shall be Present During Grading/Excavation/Trenching
 1. The Archaeological Monitor shall be present full-time during all soil disturbing and grading/excavation/trenching activities which could result in impacts to archaeological resources as identified on the AME. **The Construction Manager is responsible for notifying the RE, PI, and MMC of changes to any construction activities such as in the case of a potential safety concern within the area being monitored. In certain circumstances OSHA safety requirements may necessitate modification of the AME.**
 2. The Native American consultant/monitor shall determine the extent of their presence during soil disturbing and grading/excavation/trenching activities based on the AME and provide that information to the PI and MMC. If prehistoric resources are

encountered during the Native American consultant/monitor's absence, work shall stop and the Discovery Notification Process detailed in Section III.B-C and IV.A-D shall commence.

3. The PI may submit a detailed letter to MMC during construction requesting a modification to the monitoring program when a field condition such as modern disturbance post-dating the previous grading/trenching activities, presence of fossil formations, or when native soils are encountered that may reduce or increase the potential for resources to be present.
4. The archaeological and Native American consultant/monitor shall document field activity via the Consultant Site Visit Record (CSV). The CSV's shall be faxed by the CM to the RE the first day of monitoring, the last day of monitoring, monthly (**Notification of Monitoring Completion**), and in the case of ANY discoveries. The RE shall forward copies to MMC.

B. Discovery Notification Process

1. In the event of a discovery, the Archaeological Monitor shall direct the contractor to temporarily divert all soil disturbing activities, including but not limited to digging, trenching, excavating or grading activities in the area of discovery and in the area reasonably suspected to overlay adjacent resources and immediately notify the RE or BI, as appropriate.
2. The Monitor shall immediately notify the PI (unless Monitor is the PI) of the discovery.
3. The PI shall immediately notify MMC by phone of the discovery, and shall also submit written documentation to MMC within 24 hours by fax or email with photos of the resource in context, if possible.
4. No soil shall be exported off-site until a determination can be made regarding the significance of the resource specifically if Native American resources are encountered.

C. Determination of Significance

1. The PI and Native American consultant/monitor, where Native American resources are discovered shall evaluate the significance of the resource. If Human Remains are involved, follow protocol in Section IV below.
 - a. The PI shall immediately notify MMC by phone to discuss significance determination and shall also submit a letter to MMC indicating whether additional mitigation is required.
 - b. If the resource is significant, the PI shall submit an Archaeological Data Recovery Program (ADRP) and obtain written approval of the program from MMC, CM and RE. ADRP and any mitigation must be approved by MMC, RE and/or CM before ground disturbing activities in the area of discovery will be allowed to resume. **Note: If a unique archaeological site is also an historical resource as defined in CEQA Section 15064.5, then the limits on the amount(s) that a project applicant may be required to pay to cover mitigation costs as indicated in CEQA Section 21083.2 shall not apply.**
 - (1). Note: For pipeline trenching and other linear projects in the public Right-of-Way, the PI shall implement the Discovery Process for Pipeline Trenching projects identified below under "D."
 - c. If the resource is not significant, the PI shall submit a letter to MMC indicating that artifacts will be collected, curated, and documented in the Final Monitoring Report. The letter shall also indicate that that no further work is required.

- (1). Note: For Pipeline Trenching and other linear projects in the public Right-of-Way, if the deposit is limited in size, both in length and depth; the information value is limited and is not associated with any other resource; and there are no unique features/artifacts associated with the deposit, the discovery should be considered not significant.
- (2). Note, for Pipeline Trenching and other linear projects in the public Right-of-Way, if significance cannot be determined, the Final Monitoring Report and Site Record (DPR Form 523A/B) shall identify the discovery as Potentially Significant.

D. Discovery Process for Significant Resources - Pipeline Trenching and other Linear Projects in the Public Right-of-Way

The following procedure constitutes adequate mitigation of a significant discovery encountered during pipeline trenching activities or for other linear project types within the Public Right-of-Way including but not limited to excavation for jacking pits, receiving pits, laterals, and manholes to reduce impacts to below a level of significance:

1. Procedures for documentation, curation and reporting
 - a. One hundred percent of the artifacts within the trench alignment and width shall be documented in-situ, to include photographic records, plan view of the trench and profiles of side walls, recovered, photographed after cleaning and analyzed and curated. The remainder of the deposit within the limits of excavation (trench walls) shall be left intact.
 - b. The PI shall prepare a Draft Monitoring Report and submit to MMC via the RE as indicated in Section VI-A.
 - c. The PI shall be responsible for recording (on the appropriate State of California Department of Park and Recreation forms-DPR 523 A/B) the resource(s) encountered during the Archaeological Monitoring Program in accordance with the City's Historical Resources Guidelines. The DPR forms shall be submitted to the South Coastal Information Center for either a Primary Record or SDI Number and included in the Final Monitoring Report.
 - d. The Final Monitoring Report shall include a recommendation for monitoring of any future work in the vicinity of the resource.

IV. Discovery of Human Remains

If human remains are discovered, work shall halt in that area and no soil shall be exported off-site until a determination can be made regarding the provenance of the human remains; and the following procedures as set forth in CEQA Section 15064.5(e), the California Public Resources Code (Sec. 5097.98) and State Health and Safety Code (Sec. 7050.5) shall be undertaken:

A. Notification

1. Archaeological Monitor shall notify the RE or BI as appropriate, MMC, and the PI, if the Monitor is not qualified as a PI. MMC will notify the appropriate Senior Planner in the Environmental Analysis Section (EAS) of the Development Services Department to assist with the discovery notification process.
2. The PI shall notify the Medical Examiner after consultation with the RE, either in person or via telephone.

B. Isolate discovery site

1. Work shall be directed away from the location of the discovery and any nearby area reasonably suspected to overlay adjacent human remains until a determination can

- be made by the Medical Examiner in consultation with the PI concerning the provenience of the remains.
2. The Medical Examiner, in consultation with the PI, will determine the need for a field examination to determine the provenience.
 3. If a field examination is not warranted, the Medical Examiner will determine with input from the PI, if the remains are or are most likely to be of Native American origin.
- C. If Human Remains **ARE** determined to be Native American
1. The Medical Examiner will notify the Native American Heritage Commission (NAHC) within 24 hours. By law, **ONLY** the Medical Examiner can make this call.
 2. NAHC will immediately identify the person or persons determined to be the Most Likely Descendent (MLD) and provide contact information.
 3. The MLD will contact the PI within 24 hours or sooner after the Medical Examiner has completed coordination, to begin the consultation process in accordance with CEQA Section 15064.5(e), the California Public Resources and Health & Safety Codes.
 4. The MLD will have 48 hours to make recommendations to the property owner or representative, for the treatment or disposition with proper dignity, of the human remains and associated grave goods.
 5. Disposition of Native American Human Remains will be determined between the MLD and the PI, and, if:
 - a. The NAHC is unable to identify the MLD, OR the MLD failed to make a recommendation within 48 hours after being notified by the Commission, OR;
 - b. The landowner or authorized representative rejects the recommendation of the MLD and mediation in accordance with PRC 5097.94 (k) by the NAHC fails to provide measures acceptable to the landowner, THEN
 - c. To protect these sites, the landowner shall do one or more of the following:
 - (1) Record the site with the NAHC;
 - (2) Record an open space or conservation easement; or
 - (3) Record a document with the County.
 - d. Upon the discovery of multiple Native American human remains during a ground disturbing land development activity, the landowner may agree that additional conferral with descendants is necessary to consider culturally appropriate treatment of multiple Native American human remains. Culturally appropriate treatment of such a discovery may be ascertained from review of the site utilizing cultural and archaeological standards. Where the parties are unable to agree on the appropriate treatment measures the human remains and items associated and buried with Native American human remains shall be reinterred with appropriate dignity, pursuant to Section 5.c., above.
- D. If Human Remains are **NOT** Native American
1. The PI shall contact the Medical Examiner and notify them of the historic era context of the burial.
 2. The Medical Examiner will determine the appropriate course of action with the PI and City staff (PRC 5097.98).
 3. If the remains are of historic origin, they shall be appropriately removed and conveyed to the San Diego Museum of Man for analysis. The decision for internment of the human remains shall be made in consultation with MMC, EAS, the applicant/landowner, any known descendant group, and the San Diego Museum of Man.

V. Night and/or Weekend Work

- A. If night and/or weekend work is included in the contract
1. When night and/or weekend work is included in the contract package, the extent and timing shall be presented and discussed at the precon meeting.
 2. The following procedures shall be followed.
 - a. No Discoveries
In the event that no discoveries were encountered during night and/or weekend work, the PI shall record the information on the CSVR and submit to MMC via fax by 8AM of the next business day.
 - b. Discoveries
All discoveries shall be processed and documented using the existing procedures detailed in Sections III - During Construction, and IV – Discovery of Human Remains. Discovery of human remains shall always be treated as a significant discovery.
 - c. Potentially Significant Discoveries
If the PI determines that a potentially significant discovery has been made, the procedures detailed under Section III - During Construction and IV-Discovery of Human Remains shall be followed.
 - d. The PI shall immediately contact the RE and MMC, or by 8AM of the next business day to report and discuss the findings as indicated in Section III-B, unless other specific arrangements have been made.
- B. If night and/or weekend work becomes necessary during the course of construction
1. The Construction Manager shall notify the RE, or BI, as appropriate, a minimum of 24 hours before the work is to begin.
 2. The RE, or BI, as appropriate, shall notify MMC immediately.
- C. All other procedures described above shall apply, as appropriate.

VI. Post Construction

- A. Submittal of Draft Monitoring Report
1. The PI shall submit two copies of the Draft Monitoring Report (even if negative), prepared in accordance with the Historical Resources Guidelines (Appendix C/D) which describes the results, analysis, and conclusions of all phases of the Archaeological Monitoring Program (with appropriate graphics) to MMC via the RE for review and approval within 90 days following the completion of monitoring. **It should be noted that if the PI is unable to submit the Draft Monitoring Report within the allotted 90-day timeframe as a result of delays with analysis, special study results or other complex issues, a schedule shall be submitted to MMC establishing agreed due dates and the provision for submittal of monthly status reports until this measure can be met.**
 - a. For significant archaeological resources encountered during monitoring, the Archaeological Data Recovery Program or Pipeline Trenching Discovery Process shall be included in the Draft Monitoring Report.
 - b. Recording Sites with State of California Department of Parks and Recreation
The PI shall be responsible for recording (on the appropriate State of California Department of Park and Recreation forms-DPR 523 A/B) any significant or potentially significant resources encountered during the Archaeological Monitoring Program in accordance with the City's Historical Resources Guidelines, and submittal of such forms to the South Coastal Information Center with the Final Monitoring Report.

2. MMC shall return the Draft Monitoring Report to the PI via the RE for revision or, for preparation of the Final Report.
 3. The PI shall submit revised Draft Monitoring Report to MMC via the RE for approval.
 4. MMC shall provide written verification to the PI of the approved report.
 5. MMC shall notify the RE or BI, as appropriate, of receipt of all Draft Monitoring Report submittals and approvals.
- B. Handling of Artifacts
1. The PI shall be responsible for ensuring that all cultural remains collected are cleaned and catalogued
 2. The PI shall be responsible for ensuring that all artifacts are analyzed to identify function and chronology as they relate to the history of the area; that faunal material is identified as to species; and that specialty studies are completed, as appropriate.
- C. Curation of artifacts: Accession Agreement and Acceptance Verification
1. The PI shall be responsible for ensuring that all artifacts associated with the survey, testing and/or data recovery for this project are permanently curated with an appropriate institution. This shall be completed in consultation with MMC and the Native American representative, as applicable.
 2. When applicable to the situation, the PI shall include written verification from the Native American consultant/monitor indicating that Native American resources were treated in accordance with state law and/or applicable agreements. If the resources were reinterred, verification shall be provided to show what protective measures were taken to ensure no further disturbance occurs in accordance with Section IV – Discovery of Human Remains, Subsection C.
 3. The PI shall submit the Accession Agreement and catalogue record(s) to the RE or BI, as appropriate for donor signature with a copy submitted to MMC.
 4. The RE or BI, as appropriate shall obtain signature on the Accession Agreement and shall return to PI with copy submitted to MMC.
 5. The PI shall include the Acceptance Verification from the curation institution in the Final Monitoring Report submitted to the RE or BI and MMC.
- D. Final Monitoring Report(s)
1. The PI shall submit one copy of the approved Final Monitoring Report to the RE or BI as appropriate, and one copy to MMC (even if negative), within 90 days after notification from MMC of the approved report.
 2. The RE shall, in no case, issue the Notice of Completion until receiving a copy of the approved Final Monitoring Report from MMC which includes the Acceptance Verification from the curation institution.

C. PALEONTOLOGICAL RESOURCES

I. **Prior to Permit Issuance or Bid Opening/Bid Award**

A. Entitlements Plan Check

1. Prior to permit issuance or Bid Opening/Bid Award, whichever is applicable, the Assistant Deputy Director (ADD) Environmental designee shall verify that the requirements for Paleontological Monitoring have been noted on the appropriate construction documents.

B. Letters of Qualification have been submitted to ADD

1. Prior to Bid Award, the applicant shall submit a letter of verification to Mitigation Monitoring Coordination (MMC) identifying the Principal Investigator (PI) for the

- project and the names of all persons involved in the paleontological monitoring program, as defined in the City of San Diego Paleontology Guidelines.
2. MMC will provide a letter to the applicant confirming the qualifications of the PI and all persons involved in the paleontological monitoring of the project.
 3. Prior to the start of work, the applicant shall obtain approval from MMC for any personnel changes associated with the monitoring program.

II. Prior to Start of Construction

A. Verification of Records Search

1. The PI shall provide verification to MMC that a site specific records search has been completed. Verification includes, but is not limited to a copy of a confirmation letter from San Diego Natural History Museum, other institution or, if the search was in-house, a letter of verification from the PI stating that the search was completed.
2. The letter shall introduce any pertinent information concerning expectations and probabilities of discovery during trenching and/or grading activities.

B. PI Shall Attend Precon Meetings

1. Prior to beginning any work that requires monitoring, the Applicant shall arrange a Precon Meeting that shall include the PI, Construction Manager (CM) and/or Grading Contractor, Resident Engineer (RE), Building Inspector (BI), if appropriate, and MMC. The qualified paleontologist shall attend any grading/excavation related Precon Meetings to make comments and/or suggestions concerning the Paleontological Monitoring program with the Construction Manager and/or Grading Contractor.
 - a. If the PI is unable to attend the Precon Meeting, the Applicant shall schedule a focused Precon Meeting with MMC, the PI, RE, CM or BI, if appropriate, prior to the start of any work that requires monitoring.
2. Acknowledgement of Responsibility for Curation (CIP or Other Public Projects)
The applicant shall submit a letter to MMC acknowledging their responsibility for the cost of curation associated with all phases of the paleontological monitoring program.
3. Identify Areas to be Monitored
 - a. a. Prior to the start of any work that requires monitoring, the PI shall submit a Paleontological Monitoring Exhibit (PME) based on the appropriate construction documents (reduced to 11x17) to MMC for approval identifying the areas to be monitored including the delineation of grading/excavation limits. Monitoring shall begin at depths below 10 feet from existing grade or as determined by the PI in consultation with MMC. The determination shall be based on site specific records search data which supports monitoring at depths less than ten feet.
 - b. b. The PME shall be based on the results of a site specific records search as well as information regarding existing known soil conditions (native or formation).
 - c. c. MMC shall notify the PI that the PME has been approved.
- d. 4. When Monitoring Will Occur
 - a. Prior to the start of any work, the PI shall also submit a construction schedule to MMC through the RE indicating when and where monitoring will occur.
 - b. The PI may submit a detailed letter to MMC prior to the start of work or during construction requesting a modification to the monitoring program. This request shall be based on relevant information such as review of final construction

documents which indicate conditions such as depth of excavation and/or site graded to bedrock, presence or absence of fossil resources, etc., which may reduce or increase the potential for resources to be present.

5. Approval of PME and Construction Schedule
After approval of the PME by MMC, the PI shall submit to MMC written authorization of the PME and Construction Schedule from the CM.

III. During Construction

A. Monitor Shall be Present During Grading/Excavation/Trenching

1. The monitor shall be present full-time during grading/excavation/trenching activities including, but not limited to mainline, laterals, jacking and receiving pits, services and all other appurtenances associated with underground utilities as identified on the PME that could result in impacts to formations with high and/or moderate resource sensitivity. **The Construction Manager is responsible for notifying the RE, PI, and MMC of changes to any construction activities such as in the case of a potential safety concern within the area being monitored. In certain circumstances OSHA safety requirements may necessitate modification of the PME.**
2. The PI may submit a detailed letter to MMC during construction requesting a modification to the monitoring program when a field condition such as trenching activities that do not encounter formational soils as previously assumed, and/or when unique/unusual fossils are encountered, which may reduce or increase the potential for resources to be present.
3. The monitor shall document field activity via the Consultant Site Visit Record (CSV). The CSV's shall be faxed by the CM to the RE the first day of monitoring, the last day of monitoring, monthly (**Notification of Monitoring Completion**), and in the case of ANY discoveries. The RE shall forward copies to MMC.

B. Discovery Notification Process

1. In the event of a discovery, the Paleontological Monitor shall direct the contractor to temporarily divert trenching activities in the area of discovery and immediately notify the RE or BI, as appropriate.
2. The Monitor shall immediately notify the PI (unless Monitor is the PI) of the discovery.
3. The PI shall immediately notify MMC by phone of the discovery, and shall also submit written documentation to MMC within 24 hours by fax or email with photos of the resource in context, if possible.

C. Determination of Significance

1. The PI shall evaluate the significance of the resource.
 - a. The PI shall immediately notify MMC by phone to discuss significance determination and shall also submit a letter to MMC indicating whether additional mitigation is required. The determination of significance for fossil discoveries shall be at the discretion of the PI.
 - b. If the resource is significant, the PI shall submit a Paleontological Recovery Program (PRP) and obtain written approval of the program from MMC, MC and/or RE. PRP and any mitigation must be approved by MMC, RE and/or CM before ground disturbing activities in the area of discovery will be allowed to

resume

- (1). Note: For pipeline trenching projects only, the PI shall implement the Discovery Process for Pipeline Trenching projects identified below under "D."
 - c. If resource is not significant (e.g., small pieces of broken common shell fragments or other scattered common fossils) the PI shall notify the RE, or BI as appropriate, that a non-significant discovery has been made. The Paleontologist shall continue to monitor the area without notification to MMC unless a significant resource is encountered.
 - d. The PI shall submit a letter to MMC indicating that fossil resources will be collected, curated, and documented in the Final Monitoring Report. The letter shall also indicate that no further work is required.
 - (1). Note: For Pipeline Trenching Projects Only. If the fossil discovery is limited in size, both in length and depth; the information value is limited and there are no unique fossil features associated with the discovery area, then the discovery should be considered not significant.
 - (2). Note, for Pipeline Trenching Projects Only: If significance can not be determined, the Final Monitoring Report and Site Record shall identify the discovery as Potentially Significant.
- D. Discovery Process for Significant Resources - Pipeline Trenching Projects
- The following procedure constitutes adequate mitigation of a significant discovery encountered during pipeline trenching activities including but not limited to excavation for jacking pits, receiving pits, laterals, and manholes to reduce impacts to below a level of significance.
- 1. Procedures for documentation, curation and reporting
 - a. One hundred percent of the fossil resources within the trench alignment and width shall be documented in-situ photographically, drawn in plan view (trench and profiles of side walls), recovered from the trench and photographed after cleaning, then analyzed and curated consistent with Society of Invertebrate Paleontology Standards. The remainder of the deposit within the limits of excavation (trench walls) shall be left intact and so documented.
 - b. The PI shall prepare a Draft Monitoring Report and submit to MMC via the RE as indicated in Section VI-A.
 - c. The PI shall be responsible for recording (on the appropriate forms for the San Diego Natural History Museum) the resource(s) encountered during the Paleontological Monitoring Program in accordance with the City's Paleontological Guidelines. The forms shall be submitted to the San Diego Natural History Museum and included in the Final Monitoring Report.
 - d. The Final Monitoring Report shall include a recommendation for monitoring of any future work in the vicinity of the resource.

IV. Night and/or Weekend Work

- A. If night and/or weekend work is included in the contract
 - 1. When night and/or weekend work is included in the contract package, the extent and timing shall be presented and discussed at the precon meeting.
 - 2. The following procedures shall be followed.
 - a. No Discoveries
 - In the event that no discoveries were encountered during night and/or weekend work, The PI shall record the information on the CSVr and submit to MMC via the RE via fax by 8AM on the next business day.

- b. Discoveries
All discoveries shall be processed and documented using the existing procedures detailed in Sections III - During Construction.
 - c. Potentially Significant Discoveries
If the PI determines that a potentially significant discovery has been made, the procedures detailed under Section III - During Construction shall be followed.
 - d. The PI shall immediately contact the RE and MMC, or by 8AM on the next business day to report and discuss the findings as indicated in Section III-B, unless other specific arrangements have been made.
- B. If night and/or weekend work becomes necessary during the course of construction
 - 1. The Construction Manager shall notify the RE, or BI, as appropriate, a minimum of 24 hours before the work is to begin.
 - 2. The RE, or BI, as appropriate, shall notify MMC immediately.
 - C. All other procedures described above shall apply, as appropriate.

V. Post Construction

- A. Preparation and Submittal of Draft Monitoring Report
 - 1. The PI shall submit two copies of the Draft Monitoring Report (even if negative), prepared in accordance with the Paleontological Guidelines which describes the results, analysis, and conclusions of all phases of the Paleontological Monitoring Program (with appropriate graphics) to MMC via the RE for review and approval within 90 days following the completion of monitoring.
 - a. For significant paleontological resources encountered during monitoring, the Paleontological Recovery Program or Pipeline Trenching Discovery Process shall be included in the Draft Monitoring Report.
 - b. Recording Sites with the San Diego Natural History Museum
The PI shall be responsible for recording (on the appropriate forms) any significant or potentially significant fossil resources encountered during the Paleontological Monitoring Program in accordance with the City's Paleontological Guidelines, and submittal of such forms to the San Diego Natural History Museum with the Final Monitoring Report.
 - 2. MMC shall return the Draft Monitoring Report to the PI via the RE for revision or, for preparation of the Final Report.
 - 3. The PI shall submit revised Draft Monitoring Report to MMC via the RE for approval.
 - 4. MMC shall provide written verification to the PI of the approved report.
 - 5. MMC shall notify the RE or BI, as appropriate, of receipt of all Draft Monitoring Report submittals and approvals.
- B. Handling of Fossil Remains
 - 1. The PI shall be responsible for ensuring that all fossil remains collected are cleaned and catalogued.
- C. Curation of artifacts: Deed of Gift and Acceptance Verification
 - 1. The PI shall be responsible for ensuring that all fossil remains associated with the monitoring for this project are permanently curated with an appropriate institution.
 - 2. The PI shall submit the Deed of Gift and catalogue record(s) to the RE or BI, as appropriate for donor signature with a copy submitted to MMC.
 - 3. The RE or BI, as appropriate shall obtain signature on the Deed of Gift and shall return to PI with copy submitted to MMC.

4. The PI shall include the Acceptance Verification from the curation institution in the Final Monitoring Report submitted to the RE or BI and MMC.

D. Final Monitoring Report(s)

1. The PI shall submit two copies of the Final Monitoring Report to MMC (even if negative), within 90 days after notification from MMC of the approved report.
2. The RE shall, in no case, issue the Notice of Completion until receiving a copy of the approved Final Monitoring Report from MMC which includes the Acceptance Verification from the curation institution.

D. HISTORICAL RESOURCES (BUILT ENVIRONMENT)

When a future project requires implementation of this mitigation measure, the following paragraph shall be included in the subsequent environmental document and applicable Historic District name, boundary and district guidelines, if applicable shall be inserted as noted below in [brackets]:

The project is located within the [[insert District name]] Historic District, bounded by [[enter District boundary]] All work within the District boundary must be consistent with the City's Historical Resources Regulations, the U.S. Secretary of the Interior's Standards and the [[enter district guidelines if applicable]] District Design Guidelines. The following mitigation measures are required within the District boundary and shall ensure consistency with these regulations, Standards and guidelines.

- A. Prior to beginning any work at the site, a Pre Construction meeting that includes Historic Resources and MMC staff shall be held at the project site to review these mitigation measures and requirements within the District boundary.
- B. A Historic Sidewalk Stamp Inventory prepared by a qualified historic consultant or archaeologist and approved by HRB staff is required prior to the Pre-Construction (Pre-Con) meeting. The Inventory shall include photo documentation of all existing stamps within the project area keyed to a project site plan.
- C. Existing sidewalk stamps shall be preserved in place. Where existing sidewalk stamps must be impacted to accommodate right-of-way improvements, the following actions are required:
 1. A mold of the sidewalk stamp will be made to allow reconstruction of the stamp if destroyed during relocation.
 2. The sidewalk stamp shall be saw-cut to preserve the stamp in its entirety; relocated as near as possible to the original location; and set in the same orientation.
 3. If the sidewalk stamp is destroyed during relocation, a new sidewalk stamp shall be made from the mold taken and relocated as near as possible to the original location and set in the same orientation.
- D. No new sidewalk stamps shall be added by any contactor working on the project.
- E. Existing historic sidewalk, parkway and street widths shall be maintained. Any work that requires alteration of these widths shall be approved by Historic Resources staff.
- F. Existing historic curb heights and appearance shall be maintained. Any work that requires alteration of the existing height or appearance shall be approved by Historic Resources staff.

- G. Sections of sidewalk which may be impacted by the project shall be replaced in-kind to match the historic color, texture and scoring pattern of the original sidewalks. If the original color, scoring pattern or texture is not present at the location of the impact, the historically appropriate color, texture and scoring pattern found throughout the district shall be used.
- H. Truncated domes used at corner curb ramps shall be dark gray in color.
- I. Existing historic lighting, such as acorn lighting shall remain. New lighting shall be consistent with existing lighting fixtures, or fixtures specified in any applicable District Design Guidelines.
- J. Existing mature street trees shall remain. New street trees shall be consistent with the prevalent mature species in the District and/or species specified in any applicable District Design Guidelines.
- K. Any walls located within the right-of-way or on private property are considered historic and may not be impacted without prior review and approval by Historic Resources staff.

VI. PUBLIC REVIEW DISTRIBUTION:

Draft copies or notice of this Mitigated Negative Declaration were distributed to:

United States Government

- Fish and Wildlife Service (23)
- MCAS Miramar (13)
- Naval Facilities Engineering Command Southwest (8)

State of California

- Department of Fish and Game (32A)
- State Clearing House (46)
- Resources Agency (43)
- Native American Heritage Commission (56)
- State Historic Preservation Officer (41)
- Regional Water Quality Control Board (44)
- Water Resources (45)
- Water Resources Control Board (55)
- Coastal Commission (48)
- Caltrans District 11 (31)

County of San Diego

- Department of Environmental Health (75)
- Planning and Land Use (68)
- Water Authority (73)

City of San Diego

- Office of the Mayor (91)
- Council President Young, District 4 (MS 10A)
- Councilmember Lightner, District 1 (MS 10A)
- Councilmember Faulconer, District 2 (MS 10A)
- Councilmember Gloria, District 3 (MS 10A)
- Councilmember DeMaio, District 5 (MS 10A)

Councilmember Zapf, District 6 (MS 10A)
 Councilmember Emerald, District 7 (MS 10A)
 Councilmember Alvarez, District 8 (MS 10A)
 Historical Resource Board (87)
 City Attorney (MS 56A)
 Shannon Thomas (MS 93C)
 Engineering and Capital Projects
 Marc Cass (MS 908A)
 Allison Sherwood (MS 908A)
 Matthew DeBeliso (MS 908A)
 Akram Bassyouni (MS 908A)
 Michael Ninh (MS 908A)
 Roman Anissi (MS 908A)
 Daniel Tittle (MS 908A)
 Development Services Department
 Myra Herrmann (MS 501)
 Kristen Forburger (MS 401)
 Jeanne Krosch (MS 401)
 Kelley Stanco (MS 501)
 Library Dept.-Gov. Documents MS 17 (81)
 Balboa Branch Library (81B)
 Beckwourth Branch Library (81C)
 Benjamin Branch Library (81D)
 Carmel Mountain Ranch Branch (81E)
 Carmel Valley Branch Library (81F)
 City Heights/Weingart Branch Library (81G)
 Clairemont Branch Library (81H)
 College-Rolando Branch Library (81I)
 Kensington-Normal Heights Branch Library (81K)
 La Jolla/Riford branch Library (81L)
 Linda Vista Branch Library (81M)
 Logan Heights Branch Library (81N)
 Malcolm X Library & Performing Arts Center (81O)
 Mira Mesa Branch Library (81P)
 Mission Hills Branch Library (81Q)
 Mission Valley Branch Library (81R)
 North Clairemont Branch Library (81S)
 North Park Branch Library (81T)
 Oak Park Branch Library (81U)
 Ocean Beach Branch Library (81V)
 Otay Mesa-Nestor Branch Library (81W)
 Pacific Beach/Taylor Branch Library (81X)
 Paradise Hills Branch Library (81Y)
 Point Loma/Hervey Branch Library (81Z)
 Rancho Bernardo Branch Library (81AA)
 Rancho Peñasquitos Branch Library (81BB)
 San Carlos Branch Library (81DD)
 San Ysidro Branch Library (81EE)
 Scripps Miramar Ranch Branch Library (81FF)

Serra Mesa Branch Library (81GG)
 Skyline Hills Branch Library (81HH)
 Tierrasanta Branch Library (81II)
 University Community Branch Library (81JJ)
 University Heights Branch Library (81KK)
 Malcolm A. Love Library (457)

Other Interested Individuals or Groups

Community Planning Groups

Community Planners Committee (194)
 Balboa Park Committee (226 + 226A)
 Black Mountain Ranch –Subarea I (226C)
 Otay Mesa - Nestor Planning Committee (228)
 Otay Mesa Planning Committee (235)
 Clairemont Mesa Planning Committee (248)
 Greater Golden Hill Planning Committee (259)
 Serra Mesa Planning Group (263A)
 Kearny Mesa Community Planning Group (265)
 Linda Vista Community Planning Committee (267)
 La Jolla Community Planning Association (275)
 City Heights Area Planning Committee (287)
 Kensington-Talmadge Planning Committee (290)
 Normal Heights Community Planning Committee (291)
 Eastern Area Planning Committee (302)
 North Bay Community Planning Group (307)
 Mira Mesa Community Planning Group (310)
 Mission Beach Precise Planning Board (325)
 Mission Valley Unified Planning Organization (331)
 Navajo Community Planners Inc. (336)
 Carmel Valley Community Planning Board (350)
 Del Mar Mesa Community Planning Board (361)
 Greater North Park Planning Committee (363)
 Ocean Beach Planning Board (367)
 Old Town Community Planning Committee (368)
 Pacific Beach Community Planning Committee (375)
 Pacific Highlands Ranch – Subarea III (377A)
 Rancho Peñasquitos Planning Board (380)
 Peninsula Community Planning Board (390)
 Rancho Bernardo Community Planning Board (400)
 Sabre Springs Community Planning Group (406B)
 Sabre Springs Community Planning Group (407)
 San Pasqual - Lake Hodges Planning Group (426)
 San Ysidro Planning and Development Group (433)
 Scripps Ranch Community Planning Group (437)
 Miramar Ranch North Planning Committee (439)
 Skyline - Paradise Hills Planning Committee (443)
 Torrey Hills Community Planning Board (444A)
 Southeastern San Diego Planning Committee (449)
 Encanto Neighborhoods Community Planning Group (449A)

College Area Community Council (456)
Tierrasanta Community Council (462)
Torrey Highlands – Subarea IV (467)
Torrey Pines Community Planning Group (469)
University City Community Planning Group (480)
Uptown Planners (498)

Town/Community Councils - PUBLIC NOTICE ONLY

Town Council Presidents Association (197)
Harborview Community Council (246)
Carmel Mountain Ranch Community Council (344)
Clairemont Town Council (257)
Serra Mesa Community Council (264)
Rolando Community Council (288)
Oak Park Community Council (298)
Webster Community Council (301)
Darnell Community Council (306)
La Jolla Town Council (273)
Mission Beach Town Council (326)
Mission Valley Community Council (328 C)
San Carlos Area Council (338)
Ocean Beach Town Council, Inc. (367 A)
Pacific Beach Town Council (374)
Rancho Penasquitos Community Council (378)
Rancho Bernardo Community Council, Inc. (398)
Rancho Penasquitos Town Council (383)
United Border Community Town Council (434)
San Dieguito Planning Group (412)
Murphy Canyon Community Council (463)

Other Interested Individuals or Groups

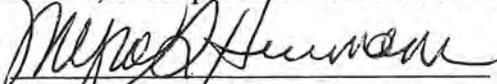
San Diego Unified Port District (109)
San Diego County Regional Airport Authority (110)
San Diego transit Corporation (112)
San Diego Gas & Electric (114)
Metropolitan Transit Systems (115)
San Diego Unified School District (125/132)
San Ysidro Unified School District (127)
San Diego Community College District (133)
The Beach and Bay Beacon News (137)
Sierra Club (165)
San Diego Canyonlands (165A)
San Diego Natural History Museum (166)
San Diego Audubon Society (167)
Jim Peugh (167A)
California Native Plant Society (170)
San Diego Coastkeeper (173)
Endangered Habitat League (182 and 182A)
South Coastal Information Center @ San Diego State University (210)

San Diego Historical Society (211)
Carmen Lucas (206)
Clint Linton (215b)
San Diego Archaeological Center (212)
Save Our Heritage Organization (214)
Ron Christman (215)
Louie Guassac (215A)
San Diego County Archaeological Society (218)
Kumeyaay Cultural Heritage Preservation (223)
Kumeyaay Cultural Repatriation Committee (225)
Native American Distribution (NOTICE ONLY 225A-T)
San Diego Historical Society (211)
Theresa Acerro (230)
Unified Port of San Diego (240)
Centre City Development Corporation (242)
Centre City Advisory Committee (243)
Balboa Avenue CAC (246)
Theresa Quiros (294)
Fairmount Park Neighborhood Association (303)
John Stump (304)
San Diego Baykeeper (319)
Debbie Knight (320)
Mission Hills Heritage (497)

VII. RESULTS OF PUBLIC REVIEW:

- () No comments were received during the public input period.
- () Comments were received but did not address the draft Mitigated Negative Declaration finding or the accuracy/completeness of the Initial Study. No response is necessary. The letters are attached.
- (x) Comments addressing the findings of the draft Mitigated Negative Declaration and/or accuracy or completeness of the Initial Study were received during the public input period. The letters and responses follow.

Copies of the draft Mitigated Negative Declaration, the Mitigation, Monitoring and Reporting Program and any Initial Study material are available in the office of the Entitlements Division for review, or for purchase at the cost of reproduction.


Myra Herrmann, Senior Planner
Development Services Department

September 14, 2011
Date of Draft Report

October 24, 2011
Date of Final Report

Analysts: J. Szymanski/M. Herrmann

Attachments:

Figure 1 - Harbor Drive Pipeline Location Map

Figure 2 - Water Group 949 Site 1 Location Map

Figure 3- Water Group 949 Site 2 Location Map

Figure 4- Water Group 949 Site 3 Location Map

Figure 5- Sewer Group 787 Location Map

Figure 6- Water Group 914 Location Map

Figure 7- Sewer and Water Group 732 Location Map

Figure 8- Water Group 949-Site 2 with the MHPA

Initial Study Checklist

30th STREET PIPELINE REPLACEMENT PROJECT
ADDENDUM TO MITIGATED NEGATIVE DECLARATION NO. 255100
(Project No. 514031)
AND
MITIGATION MONITORING AND REPORTING PROGRAM (MMRP)

ADOPTED ON FEBRUARY 14, 2017

WHEREAS, on September 23, 2016, The City of San Diego Public Works Department submitted an application to the Development Services Department of a Public Project Assessment (PPA) for the 30th Street Pipeline Replacement (Project), for approval of minor technical changes or additions to the Citywide Pipeline Projects scope that was analyzed by adopted Mitigated Negative Declaration No. 255100; and

WHEREAS, the matter was considered without a public hearing by the Deputy Director of the Development Services Department as designated by the City Manager of the City of San Diego on February 14, 2017; and

WHEREAS, on February 14, 2017, the Deputy Director of the Development Services considered the issues discussed in Addendum to Mitigated Negative Declaration No. 255100 (Declaration), a copy of which is on file in the Development Services Department, in accordance with the California Environmental Quality Act of 1970 (CEQA) (Public Resources Code Section 21000 et seq.), as amended, and the State CEQA Guidelines thereto (California Code of Regulations, Title 14, Chapter 3, Section 15000 et seq.); and

WHEREAS, State CEQA Guidelines section 15164(a) allows a lead agency to prepare an Addendum to a final Mitigated Negative Declaration if such Addendum meets the requirements of CEQA; NOW, THEREFORE,

BE IT RESOLVED, by the Deputy Director of the Development Services Department of the City of San Diego as follows:

1. That the information contained in the final Mitigated Negative Declaration No. 255100 along with the Addendum thereto, including any comments received during the public review process, has been reviewed and considered by this Deputy Director of the Development Services Department prior to making a decision on the Project.
2. That there are no substantial changes proposed to the Project and no substantial changes with respect to the circumstances under which the Project is to be undertaken that would require major revisions in the Mitigated Negative Declaration for the Project.
3. That no new information of substantial importance has become available showing that the Project would have any significant effects not discussed previously in Mitigated Negative Declaration or that any significant effects previously examined will be substantially more severe than shown in the Mitigated Negative Declaration.

4. That no new information of substantial importance has become available showing that mitigation measures or alternatives previously found not to be feasible are in fact feasible which would substantially reduce any significant effects, but that the Project proponents decline to adopt, or that there are any considerably different mitigation measures or alternatives not previously considered which would substantially reduce any significant effects, but that the Project proponents decline to adopt.
5. That pursuant to State CEQA Guidelines Section 15164, only minor technical changes or additions are necessary, and therefore, the Deputy Director of the Development Services Department adopts Addendum to Mitigated Negative Declaration No. 255100 with respect to the Project, a copy of which is on file in the office of the Development Services Department.
6. That pursuant to CEQA Section 21081.6, the Deputy Director of the Development Services Department adopts the Mitigation Monitoring and Reporting Program, or alterations to implement the changes to the project as required by this Deputy Director of the Development Services Department in order to mitigate or avoid significant effects on the environment, which is attached hereto as Exhibit A.
7. That DEVELOPMENT SERVICES STAFF is directed to file a Notice of Determination with the Clerk of the Board of Supervisors for the County of San Diego regarding the Project.

APPROVED: Kerry Santoro, Deputy Director, Development Services Department

By: 

Date: 2/14/17

ATTACHMENT: EXHIBIT A - MITIGATION MONITORING AND REPORTING PROGRAM

EXHIBIT A

MITIGATION MONITORING AND REPORTING PROGRAM 30TH STREET PIPELINE REPLACEMENT PROJECT PROJECT NO. 514031

This Mitigation Monitoring and Reporting Program is designed to ensure compliance with Public Resources Code Section 21081.6 during implementation of mitigation measures. This program identifies at a minimum: the department responsible for the monitoring, what is to be monitored, how the monitoring shall be accomplished, the monitoring and reporting schedule, and completion requirements. A record of the Mitigation Monitoring and Reporting Program will be maintained at the offices of the Entitlements Division, 1222 First Avenue, Fifth Floor, San Diego, CA, 92101.

GENERAL REQUIREMENTS

1. Prior to issuance of a Notice to Proceed (NTP), the Assistant Deputy Director (ADD) Environmental Designee of the Entitlements Division shall verify that Mitigation Measures for **HISTORICAL RESOURCES (Built Environment)** and **LAND USE (MHPA ADJACENCY)** have been included in entirety on the submitted construction documents and contract specifications, and included under the heading, "Environmental Mitigation Requirements." In addition, the requirements for a Preconstruction Meeting shall be noted on all construction documents.
2. Prior to the commencement of work, a Preconstruction Meeting (Pre-con) shall be conducted and include the City of San Diego's Mitigation Monitoring Coordination (MMC) Section, Resident Engineer, Building Inspector, Project Consultant (**Qualified Historic Consultant or Archeologist, Biologist**) Applicant and other parties of interest.
3. Evidence of compliance with other permitting authorities is required, if applicable. Evidence shall include either copies of permits issued, letters of resolution issued by the Responsible Agency documenting compliance, or other evidence documenting compliance and deemed acceptable by the ADD Environmental Designee.

HISTORICAL RESOURCES (BUILT ENVIRONMENT)

The project is located within the Burlingame Historic District, bounded by Nutmeg Street to the north, 32nd Street to the east, alleyway, between Juniper Street and Kalmia Street, to the south, and 30th Street to the west. All work within the District boundary must be consistent with the City's Historical Resources Regulations, the U.S. Secretary of the Interior's Standards and the Burlingame Historic District Design Guidelines. The following mitigation measures are required within the District boundary and shall ensure consistency with these regulations, Standards and guidelines.

- A. Prior to beginning any work at the site, a Pre-Construction meeting that includes Historic Resources and MMC staff shall be held at the project site to review these mitigation measures and requirements within the District boundary.

- B. A Historic Sidewalk Stamp Inventory prepared by a qualified historic consultant or archaeologist and approved by HRB staff is required prior to the Pre-Construction (Pre- Con) meeting. The Inventory shall include photo documentation of all existing stamps within the project area keyed to a project site plan.
- C. Existing sidewalk stamps shall be preserved in place. Where existing sidewalk stamps must be impacted to accommodate right-of-way improvements, the following actions are required:
 - 1. A mold of the sidewalk stamp will be made to allow reconstruction of the stamp if destroyed during relocation.
 - 2. The sidewalk stamp shall be saw-cut to preserve the stamp in its entirety; relocated as near as possible to the original location and set in the same orientation.
 - 3. If the sidewalk stamp is destroyed during relocation, a new sidewalk stamp shall be made from the mold taken and relocated as near as possible to the original location and set in the same orientation.
- D. No new sidewalk stamps shall be added by any contractor working on the project.
- E. Existing historic sidewalk, parkway and street widths shall be maintained. Any work that requires alteration of these widths shall be approved by Historic Resources staff.
- F. Existing historic curb heights and appearance shall be maintained. Any work that requires alteration of the existing height or appearance shall be approved by Historic Resources staff.
- G. Sections of sidewalk which may be impacted by the project shall be replaced in-kind to match the historic color, texture and scoring pattern of the original sidewalks. If the original color, scoring pattern or texture is not present at the location of the impact, the historically appropriate color, texture and scoring pattern found throughout the district shall be used.
- H. Truncated domes used at corner curb ramps shall be dark grey in color.
- I. Existing historic lighting, such as acorn lighting shall remain. New lighting shall be consistent with existing lighting fixtures, or fixtures specified in any applicable District Design Guidelines.
- J. Existing mature trees shall remain. New street trees shall be consistent with the prevalent mature species in the District and/or species specified in any applicable District Design Guidelines.
- K. Any walls located within the right-of-way or on private property are considered historic and may not be impacted without prior review and approval by Historic Resources staff.

LAND USE (MHPA ADJACENCY)

Prior to issuance of any construction permit or notice to proceed, DSD/ LDR, and/or MSCP staff shall verify the Applicant has accurately represented the project's design in or on the Construction

Documents (CD's/CD's consist of Construction Plan Sets for Private Projects and Contract Specifications for Public Projects) are in conformance with the associated discretionary permit conditions and Exhibit "A", and also the City's Multi-Species Conservation Program (MSCP) Multi-Habitat Planning Area (MHPA) Land Use Adjacency Guidelines. The applicant shall provide an implementing plan and include references on/in CD's of the following:

- A. Grading/Land Development/MHPA Boundaries - MHPA boundaries on-site and adjacent properties shall be delineated on the CDs. DSD Planning and/or MSCP staff shall ensure that all grading is included within the development footprint, specifically manufactured slopes, disturbance, and development within or adjacent to the MHPA. For projects within or adjacent to the MHPA, all manufactured slopes associated with site development shall be included within the development footprint.
- B. Drainage - All new and proposed parking lots and developed areas in and adjacent to the MHPA shall be designed so they do not drain directly into the MHPA. All developed and paved areas must prevent the release of toxins, chemicals, petroleum products, exotic plant materials prior to release by incorporating the use of filtration devices, planted swales and/or planted detention/desiltation basins, or other approved permanent methods that are designed to minimize negative impacts, such as excessive water and toxins into the ecosystems of the MHPA.
- C. Toxics/Project Staging Areas/Equipment Storage - Projects that use chemicals or generate by-products such as pesticides, herbicides, and animal waste, and other substances that are potentially toxic or impactful to native habitats/flora/fauna (including water) shall incorporate measures to reduce impacts caused by the application and/or drainage of such materials into the MHPA. No trash, oil, parking, or other construction/development-related material/activities shall be allowed outside any approved construction limits. Where applicable, this requirement shall be incorporated into leases on publicly-owned property when applications for renewal occur. Provide a note in/on the CD's that states: "All construction related activity that may have potential for leakage or intrusion shall be monitored by the Qualified Biologist/Owners Representative or Resident Engineer to ensure there is no impact to the MHPA."
- D. Lighting - Lighting within or adjacent to the MHPA shall be directed away/shielded from the MHPA and be subject to City Outdoor Lighting Regulations per LDC Section 142.0740.
- E. Barriers - New development within or adjacent to the MHPA shall be required to provide barriers (e.g., non-invasive vegetation; rocks/boulders; 6-foot high, vinyl-coated chain link or equivalent fences/walls; and/or signage) along the MHPA boundaries to direct public access to appropriate locations, reduce domestic animal predation, protect wildlife in the preserve, and provide adequate noise reduction where needed.
- F. Invasives- No invasive non-native plant species shall be introduced into areas within or adjacent to the MHPA.
- G. Brush Management - New development adjacent to the MHPA shall be set back from the MHPA to provide required Brush Management Zone 1 area on the building pad outside of the

MHPA. Zone 2 may be located within the MHPA provided the Zone 2 management will be the responsibility of an HOA or other private entity except where narrow wildlife corridors require it to be located outside of the MHPA. Brush management zones will not be greater in size than currently required by the City's regulations, the amount of woody vegetation clearing shall not exceed 50 percent of the vegetation existing when the initial clearing is done and vegetation clearing shall be prohibited within native coastal sage scrub and chaparral habitats from March 1-August 15 except where the City ADD/MMC has documented the thinning would be consistent with the City's MSCP Subarea Plan. Existing and approved projects are subject to current requirements of Municipal Code Section 142.0412.

- H. Noise - Due to the site's location adjacent to or within the MHPA where the Qualified Biologist has identified potential nesting habitat for listed avian species, construction noise that exceeds the maximum levels allowed shall be avoided during the breeding seasons for the following: California Gnatcatcher (3/1-8/15); Least Bell's vireo (3/15-9/15); and Southwestern Willow Flycatcher (5/1-8/30) (select only the species that apply). If construction is proposed during the breeding season for the species, U.S. Fish and Wildlife Service protocol surveys shall be required in order to determine species presence/absence. If protocol surveys are not conducted in suitable habitat during the breeding season for the aforementioned listed species, presence shall be assumed with implementation of noise attenuation and biological monitoring.

When applicable (i.e., habitat is occupied or if presence of the covered species is assumed), adequate noise reduction measures shall be incorporated as follows:

COASTAL CALIFORNIA GNATCATCHER (Federally Threatened)

- 1. Prior to the preconstruction meeting, the City Manager (or appointed designee) shall verify that the Multi-Habitat Planning Area (MHPA) boundaries and the following project requirements regarding the coastal California gnatcatcher are shown on the construction plans:

NO CLEARING, GRUBBING, GRADING, OR OTHER CONSTRUCTION ACTIVITIES SHALL OCCUR BETWEEN MARCH 1 AND AUGUST 15, THE BREEDING SEASON OF THE COASTAL CALIFORNIA GNATCATCHER, UNTIL THE FOLLOWING REQUIREMENTS HAVE BEEN MET TO THE SATISFACTION OF THE CITY MANAGER:

- A. A QUALIFIED BIOLOGIST (POSSESSING A VALID ENDANGERED SPECIES ACT SECTION 10(a)(1)(A) RECOVERY PERMIT) SHALL SURVEY THOSE HABITAT AREAS WITHIN THE MHPA THAT WOULD BE SUBJECT TO CONSTRUCTION NOISE LEVELS EXCEEDING 60 DECIBELS [dB(A)] HOURLY AVERAGE FOR THE PRESENCE OF THE COASTAL CALIFORNIA GNATCATCHER. SURVEYS FOR THE COASTAL CALIFORNIA GNATCATCHER SHALL BE CONDUCTED PURSUANT TO THE PROTOCOL SURVEY GUIDELINES ESTABLISHED BY THE U.S. FISH AND WILDLIFE SERVICE WITHIN THE BREEDING SEASON PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION. IF GNATCATCHERS ARE PRESENT, THEN THE FOLLOWING CONDITIONS MUST BE MET:

- I. BETWEEN MARCH 1 AND AUGUST 15, NO CLEARING, GRUBBING, OR GRADING

OF OCCUPIED GNATCATCHER HABITAT SHALL BE PERMITTED. AREAS RESTRICTED FROM SUCH ACTIVITIES SHALL BE STAKED OR FENCED UNDER THE SUPERVISION OF A QUALIFIED BIOLOGIST; AND

- II. BETWEEN MARCH 1 AND AUGUST 15, NO CONSTRUCTION ACTIVITIES SHALL OCCUR WITHIN ANY PORTION OF THE SITE WHERE CONSTRUCTION ACTIVITIES WOULD RESULT IN NOISE LEVELS EXCEEDING 60 dB (A) HOURLY AVERAGE AT THE EDGE OF OCCUPIED GNATCATCHER HABITAT. AN ANALYSIS SHOWING THAT NOISE GENERATED BY CONSTRUCTION ACTIVITIES WOULD NOT EXCEED 60 dB (A) HOURLY AVERAGE AT THE EDGE OF OCCUPIED HABITAT MUST BE COMPLETED BY A QUALIFIED ACOUSTICIAN (POSSESSING CURRENT NOISE ENGINEER LICENSE OR REGISTRATION WITH MONITORING NOISE LEVEL EXPERIENCE WITH LISTED ANIMAL SPECIES) AND APPROVED BY THE CITY MANAGER AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES DURING THE BREEDING SEASON, AREAS RESTRICTED FROM SUCH ACTIVITIES SHALL BE STAKED OR FENCED UNDER THE SUPERVISION OF A QUALIFIED BIOLOGIST; OR
- III. AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES, UNDER THE DIRECTION OF A QUALIFIED ACOUSTICIAN, NOISE ATTENUATION MEASURES (e.g., BERMS, WALLS) SHALL BE IMPLEMENTED TO ENSURE THAT NOISE LEVELS RESULTING FROM CONSTRUCTION ACTIVITIES WILL NOT EXCEED 60 dB(A) HOURLY AVERAGE AT THE EDGE OF HABITAT OCCUPIED BY THE COASTAL CALIFORNIA GNATCATCHER. CONCURRENT WITH THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES AND THE CONSTRUCTION OF NECESSARY NOISE ATTENUATION FACILITIES, NOISE MONITORING* SHALL BE CONDUCTED AT THE EDGE OF THE OCCUPIED HABITAT AREA TO ENSURE THAT NOISE LEVELS DO NOT EXCEED 60 dB (A) HOURLY AVERAGE. IF THE NOISE ATTENUATION TECHNIQUES IMPLEMENTED ARE DETERMINED TO BE INADEQUATE BY THE QUALIFIED ACOUSTICIAN OR BIOLOGIST, THEN THE ASSOCIATED CONSTRUCTION ACTIVITIES SHALL CEASE UNTIL SUCH TIME THAT ADEQUATE NOISE ATTENUATION IS ACHIEVED OR UNTIL THE END OF THE BREEDING SEASON (AUGUST 16).

The above Mitigation Monitoring and Reporting Program will require additional fees and/or deposits to be collected prior to the issuance of building permits, certificates or occupancy and/or final maps to ensure the successful completion of the monitoring program.

APPENDIX B
FIRE HYDRANT METER PROGRAM

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SUBJECT FIRE HYDRANT METER PROGRAM (FORMERLY: CONSTRUCTION METER PROGRAM)	PAGE 1 OF 10	EFFECTIVE DATE October 15, 2002
	SUPERSEDES DI 55.27	DATED April 21, 2000

1. **PURPOSE**

1.1 To establish a Departmental policy and procedure for issuance, proper usage and charges for fire hydrant meters.

2. **AUTHORITY**

2.1 All authorities and references shall be current versions and revisions.

2.2 San Diego Municipal Code (NC) Chapter VI, Article 7, Sections 67.14 and 67.15

2.3 Code of Federal Regulations, Safe Drinking Water Act of 1986

2.4 California Code of Regulations, Titles 17 and 22

2.5 California State Penal Code, Section 498B.0

2.6 State of California Water Code, Section 110, 500-6, and 520-23

2.7 Water Department Director

Reference

2.8 State of California Guidance Manual for Cross Connection Programs

2.9 American Water Works Association Manual M-14, Recommended Practice for Backflow Prevention

2.10 American Water Works Association Standards for Water Meters

2.11 U.S.C. Foundation for Cross Connection Control and Hydraulic Research Manual

3. **DEFINITIONS**

3.1 **Fire Hydrant Meter:** A portable water meter which is connected to a fire hydrant for the purpose of temporary use. (These meters are sometimes referred to as Construction Meters.)

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- 3.2 **Temporary Water Use:** Water provided to the customer for no longer than twelve (12) months.
- 3.3 **Backflow Preventor:** A Reduced Pressure Principal Assembly connected to the outlet side of a Fire Hydrant Meter.

4. **POLICY**

- 4.1 The Water Department shall collect a deposit from every customer requiring a fire hydrant meter and appurtenances prior to providing the meter and appurtenances (see Section 7.1 regarding the Fees and Deposit Schedule). The deposit is refundable upon the termination of use and return of equipment and appurtenances in good working condition.
- 4.2 Fire hydrant meters will have a 2 ½" swivel connection between the meter and fire hydrant. The meter shall not be connected to the 4" port on the hydrant. All Fire Hydrant Meters issued shall have a Reduced Pressure Principle Assembly (RP) as part of the installation. Spanner wrenches are the only tool allowed to turn on water at the fire hydrant.
- 4.3 The use of private hydrant meters on City hydrants is prohibited, with exceptions as noted below. All private fire hydrant meters are to be phased out of the City of San Diego. All customers who wish to continue to use their own fire hydrant meters must adhere to the following conditions:
 - a. Meters shall meet all City specifications and American Water Works Association (AWWA) standards.
 - b. Customers currently using private fire hydrant meters in the City of San Diego water system will be allowed to continue using the meter under the following conditions:
 - 1. The customer must submit a current certificate of accuracy and calibration results for private meters and private backflows annually to the City of San Diego, Water Department, Meter Shop.

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2. The meter must be properly identifiable with a clearly labeled serial number on the body of the fire hydrant meter. The serial number shall be plainly stamped on the register lid and the main casing. Serial numbers shall be visible from the top of the meter casing and the numbers shall be stamped on the top of the inlet casing flange.
3. All meters shall be locked to the fire hydrant by the Water Department, Meter Section (see Section 4.7).
4. All meters shall be read by the Water Department, Meter Section (see Section 4.7).
5. All meters shall be relocated by the Water Department, Meter Section (see Section 4.7).
6. These meters shall be tested on the anniversary of the original test date and proof of testing will be submitted to the Water Department, Meter Shop, on a yearly basis. If not tested, the meter will not be allowed for use in the City of San Diego.
7. All private fire hydrant meters shall have backflow devices attached when installed.
8. The customer must maintain and repair their own private meters and private backflows.
9. The customer must provide current test and calibration results to the Water Department, Meter Shop after any repairs.
10. When private meters are damaged beyond repair, these private meters will be replaced by City owned fire hydrant meters.

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11. When a private meter malfunctions, the customer will be notified and the meter will be removed by the City and returned to the customer for repairs. Testing and calibration results shall be given to the City prior to any re-installation.
 12. The register shall be hermetically sealed straight reading and shall be readable from the inlet side. Registration shall be in hundred cubic feet.
 13. The outlet shall have a 2 ½ “National Standards Tested (NST) fire hydrant male coupling.
 14. Private fire hydrant meters shall not be transferable from one contracting company to another (i.e. if a company goes out of business or is bought out by another company).
- 4.4 All fire hydrant meters and appurtenances shall be installed, relocated and removed by the City of San Diego, Water Department. All City owned fire hydrant meters and appurtenances shall be maintained by the City of San Diego, Water Department, Meter Services.
- 4.5 If any fire hydrant meter is used in violation of this Department Instruction, the violation will be reported to the Code Compliance Section for investigation and appropriate action. Any customer using a fire hydrant meter in violation of the requirements set forth above is subject to fines or penalties pursuant to the Municipal Code, Section 67.15 and Section 67.37.
- 4.6 Conditions and Processes for Issuance of a Fire Hydrant Meter**
- Process for Issuance
- a. Fire hydrant meters shall only be used for the following purposes:
 1. Temporary irrigation purposes not to exceed one year.

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2. Construction and maintenance related activities (see Tab 2).
 - b. No customer inside or outside the boundaries of the City of San Diego Water Department shall resell any portion of the water delivered through a fire hydrant by the City of San Diego Water Department.
 - c. The City of San Diego allows for the issuance of a temporary fire hydrant meter for a period not to exceed 12 months (365 days). An extension can only be granted in writing from the Water Department Director for up to 90 additional days. A written request for an extension by the consumer must be submitted at least 30 days prior to the 12 month period ending. No extension shall be granted to any customer with a delinquent account with the Water Department. No further extensions shall be granted.
 - d. Any customer requesting the issuance of a fire hydrant meter shall file an application with the Meter Section. The customer must complete a "Fire Hydrant Meter Application" (Tab 1) which includes the name of the company, the party responsible for payment, Social Security number and/or California ID, requested location of the meter (a detailed map signifying an exact location), local contact person, local phone number, a contractor's license (or a business license), description of specific water use, duration of use at the site and full name and address of the person responsible for payment.
 - e. At the time of the application the customer will pay their fees according to the schedule set forth in the Rate Book of Fees and Charges, located in the City Clerk's Office. All fees must be paid by check, money order or cashiers check, made payable to the City Treasurer. Cash will not be accepted.
 - f. No fire hydrant meters shall be furnished or relocated for any customer with a delinquent account with the Water Department.
 - g. After the fees have been paid and an account has been created, the

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meter shall be installed within 48 hours (by the second business day). For an additional fee, at overtime rates, meters can be installed within 24 hours (within one business day).

4.7 Relocation of Existing Fire Hydrant Meters

- a. The customer shall call the Fire Hydrant Meter Hotline (herein referred to as “Hotline”), a minimum of 24 hours in advance, to request the relocation of a meter. A fee will be charged to the existing account, which must be current before a work order is generated for the meter’s relocation.
- b. The customer will supply in writing the address where the meter is to be relocated (map page, cross street, etc). The customer must update the original Fire Hydrant Meter Application with any changes as it applies to the new location.
- c. Fire hydrant meters shall be read on a monthly basis. While fire hydrant meters and backflow devices are in service, commodity, base fee and damage charges, if applicable, will be billed to the customer on a monthly basis. If the account becomes delinquent, the meter will be removed.

4.8 Disconnection of Fire Hydrant Meter

- a. After ten (10) months a “Notice of Discontinuation of Service” (Tab 3) will be issued to the site and the address of record to notify the customer of the date of discontinuance of service. An extension can only be granted in writing from the Water Department Director for up to 90 additional days (as stated in Section 4.6C) and a copy of the extension shall be forwarded to the Meter Shop Supervisor. If an extension has not been approved, the meter will be removed after twelve (12) months of use.
- b. Upon completion of the project the customer will notify the Meter Services office via the Hotline to request the removal of the fire hydrant meter and appurtenances. A work order will be generated

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for removal of the meter.

- c. Meter Section staff will remove the meter and backflow prevention assembly and return it to the Meter Shop. Once returned to the Meter Shop the meter and backflow will be tested for accuracy and functionality.
- d. Meter Section Staff will contact and notify Customer Services of the final read and any charges resulting from damages to the meter and backflow or its appurtenance. These charges will be added on the customer's final bill and will be sent to the address of record. Any customer who has an outstanding balance will not receive additional meters.
- e. Outstanding balances due may be deducted from deposits and any balances refunded to the customer. Any outstanding balances will be turned over to the City Treasurer for collection. Outstanding balances may also be transferred to any other existing accounts.

5. **EXCEPTIONS**

- 5.1 Any request for exceptions to this policy shall be presented, in writing, to the Customer Support Deputy Director, or his/her designee for consideration.

6. **MOBILE METER**

- 6.1 Mobile meters will be allowed on a case by case basis. All mobile meters will be protected by an approved backflow assembly and the minimum requirement will be a Reduced Pressure Principal Assembly. The two types of Mobile Meters are vehicle mounted and floating meters. Each style of meters has separate guidelines that shall be followed for the customer to retain service and are described below:

- a) **Vehicle Mounted Meters:** Customer applies for and receives a City owned Fire Hydrant Meter from the Meter Shop. The customer mounts the meter on the vehicle and brings it to the Meter Shop for

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inspection. After installation is approved by the Meter Shop the vehicle and meter shall be brought to the Meter Shop on a monthly basis for meter reading and on a quarterly basis for testing of the backflow assembly. Meters mounted at the owner's expense shall have the one year contract expiration waived and shall have meter or backflow changed if either fails.

b) **Floating Meters:** Floating Meters are meters that are not mounted to a vehicle. **(Note: All floating meters shall have an approved backflow assembly attached.)** The customer shall submit an application and a letter explaining the need for a floating meter to the Meter Shop. The Fire Hydrant Meter Administrator, after a thorough review of the needs of the customer, (i.e. number of jobsites per day, City contract work, lack of mounting area on work vehicle, etc.), may issue a floating meter. At the time of issue, it will be necessary for the customer to complete and sign the "Floating Fire Hydrant Meter Agreement" which states the following:

- 1) The meter will be brought to the Meter Shop at 2797 Caminito Chollas, San Diego on the third week of each month for the monthly read by Meter Shop personnel.
- 2) Every other month the meter will be read and the backflow will be tested. This date will be determined by the start date of the agreement.

If any of the conditions stated above are not met the Meter Shop has the right to cancel the contract for floating meter use and close the account associated with the meter. The Meter Shop will also exercise the right to refuse the issuance of another floating meter to the company in question.

Any Fire Hydrant Meter using reclaimed water shall not be allowed use again with any potable water supply. The customer shall incur the cost of replacing the meter and backflow device in this instance.

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7. **FEE AND DEPOSIT SCHEDULES**

7.1 **Fees and Deposit Schedules:** The fees and deposits, as listed in the Rate Book of Fees and Charges, on file with the Office of the City Clerk, are based on actual reimbursement of costs of services performed, equipment and materials. These deposits and fees will be amended, as needed, based on actual costs. Deposits, will be refunded at the end of the use of the fire hydrant meter, upon return of equipment in good working condition and all outstanding balances on account are paid. Deposits can also be used to cover outstanding balances.

All fees for equipment, installation, testing, relocation and other costs related to this program are subject to change without prior notification. The Mayor and Council will be notified of any future changes.

8. **UNAUTHORIZED USE OF WATER FROM A HYDRANT**

8.1 Use of water from any fire hydrant without a properly issued and installed fire hydrant meter is theft of City property. Customers who use water for unauthorized purposes or without a City of San Diego issued meter will be prosecuted.

8.2 If any unauthorized connection, disconnection or relocation of a fire hydrant meter, or other connection device is made by anyone other than authorized Water Department personnel, the person making the connection will be prosecuted for a violation of San Diego Municipal Code, Section 67.15. In the case of a second offense, the customer's fire hydrant meter shall be confiscated and/or the deposit will be forfeited.

8.3 Unauthorized water use shall be billed to the responsible party. Water use charges shall be based on meter readings, or estimates when meter readings are not available.

8.4 In case of unauthorized water use, the customer shall be billed for all applicable charges as if proper authorization for the water use had been obtained, including but not limited to bi-monthly service charges, installation charges and removal charges.

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- 8.5 If damage occurs to Water Department property (i.e. fire hydrant meter, backflow, various appurtenances), the cost of repairs or replacements will be charged to the customer of record (applicant).

**Larry Gardner
Water Department Director**

- Tabs: 1. Fire Hydrant Meter Application
2. Construction & Maintenance Related Activities With No Return To Sewer
3. Notice of Discontinuation of Service

APPENDIX

Administering Division: Customer Support Division

Subject Index: Construction Meters
Fire Hydrant
Fire Hydrant Meter Program
Meters, Floating or Vehicle Mounted
Mobile Meter
Program, Fire Hydrant Meter

Distribution: DI Manual Holders



Application for Fire Hydrant Meter (EXHIBIT A)

(For Office Use Only)

NS REQ	FAC#
DATE	BY

METER SHOP (619) 527-7449

Meter Information

Application Date	Requested Install Date:
------------------	-------------------------

Fire Hydrant Location: (Attach Detailed Map//Thomas Bros. Map Location or Construction drawing.) <u>Zip:</u>	T.B.	G.B. (CITY USE)
Specific Use of Water:		
Any Return to Sewer or Storm Drain, if so, explain:		
Estimated Duration of Meter Use:	<input type="checkbox"/>	<input type="checkbox"/> Check Box if Reclaimed Water

Company Information

Company Name:			
Mailing Address:			
City:	State:	Zip:	Phone: ()
*Business license#		*Contractor license#	
A Copy of the Contractor's license OR Business License is required at the time of meter issuance.			
Name and Title of Billing Agent: <small>(PERSON IN ACCOUNTS PAYABLE)</small>			Phone: ()
Site Contact Name and Title:			Phone: ()
Responsible Party Name:			Title:
Cal ID#			Phone: ()
Signature:		Date:	
<small>Guarantees Payment of all Charges Resulting from the use of this Meter. Insures that employees of this Organization understand the proper use of Fire Hydrant Meter</small>			

Fire Hydrant Meter Removal Request	Requested Removal Date:
Provide Current Meter Location if Different from Above:	
Signature:	Title: Date:
Phone: ()	Pager: ()

<input type="checkbox"/> City Meter	<input type="checkbox"/> Private Meter	
Contract Acct #:	Deposit Amount: \$ 936.00	Fees Amount: \$ 62.00
Meter Serial #	Meter Size: 05	Meter Make and Style: 6-7
Backflow #	Backflow Size:	Backflow Make and Style:
Name:	Signature:	Date:

WATER USES WITHOUT ANTICIPATED CHARGES FOR RETURN TO SEWER

Auto Detailing
Backfilling
Combination Cleaners (Vactors)
Compaction
Concrete Cutters
Construction Trailers
Cross Connection Testing
Dust Control
Flushing Water Mains
Hydro Blasting
Hydro Seeing
Irrigation (for establishing irrigation only; not continuing irrigation)
Mixing Concrete
Mobile Car Washing
Special Events
Street Sweeping
Water Tanks
Water Trucks
Window Washing

Note:

1. If there is any return to sewer or storm drain, then sewer and/or storm drain fees will be charges.

Date

Name of Responsible Party
Company Name and Address
Account Number: _____

Subject: Discontinuation of Fire Hydrant Meter Service

Dear Water Department Customer:

The authorization for use of Fire Hydrant Meter # _____, located at *(Meter Location Address)* ends in 60 days and will be removed on or after *(Date Authorization Expires)*. Extension requests for an additional 90 days must be submitted in writing for consideration 30 days prior to the discontinuation date. If you require an extension, please contact the Water Department, or mail your request for an extension to:

City of San Diego
Water Department
Attention: Meter Services
2797 Caminito Chollas
San Diego, CA 92105-5097

Should you have any questions regarding this matter, please call the Fire Hydrant Hotline at (619) _____ - _____.

Sincerely,

Water Department

APPENDIX C

MATERIALS TYPICALLY ACCEPTED BY CERTIFICATE OF COMPLIANCE

Materials Typically Accepted by Certificate of Compliance

1. Soil amendment
2. Fiber mulch
3. PVC or PE pipe up to 16 inch diameter
4. Stabilizing emulsion
5. Lime
6. Preformed elastomeric joint seal
7. Plain and fabric reinforced elastomeric bearing pads
8. Steel reinforced elastomeric bearing pads
9. Waterstops (Special Condition)
10. Epoxy coated bar reinforcement
11. Plain and reinforcing steel
12. Structural steel
13. Structural timber and lumber
14. Treated timber and lumber
15. Lumber and timber
16. Aluminum pipe and aluminum pipe arch
17. Corrugated steel pipe and corrugated steel pipe arch
18. Structural metal plate pipe arches and pipe arches
19. Perforated steel pipe
20. Aluminum underdrain pipe
21. Aluminum or steel entrance tapers, pipe downdrains, reducers, coupling bands and slip joints
22. Metal target plates
23. Paint (traffic striping)
24. Conductors
25. Painting of electrical equipment
26. Electrical components
27. Engineering fabric
28. Portland Cement
29. PCC admixtures
30. Minor concrete, asphalt
31. Asphalt (oil)
32. Liquid asphalt emulsion
33. Epoxy

APPENDIX D

SAMPLE CITY INVOICE

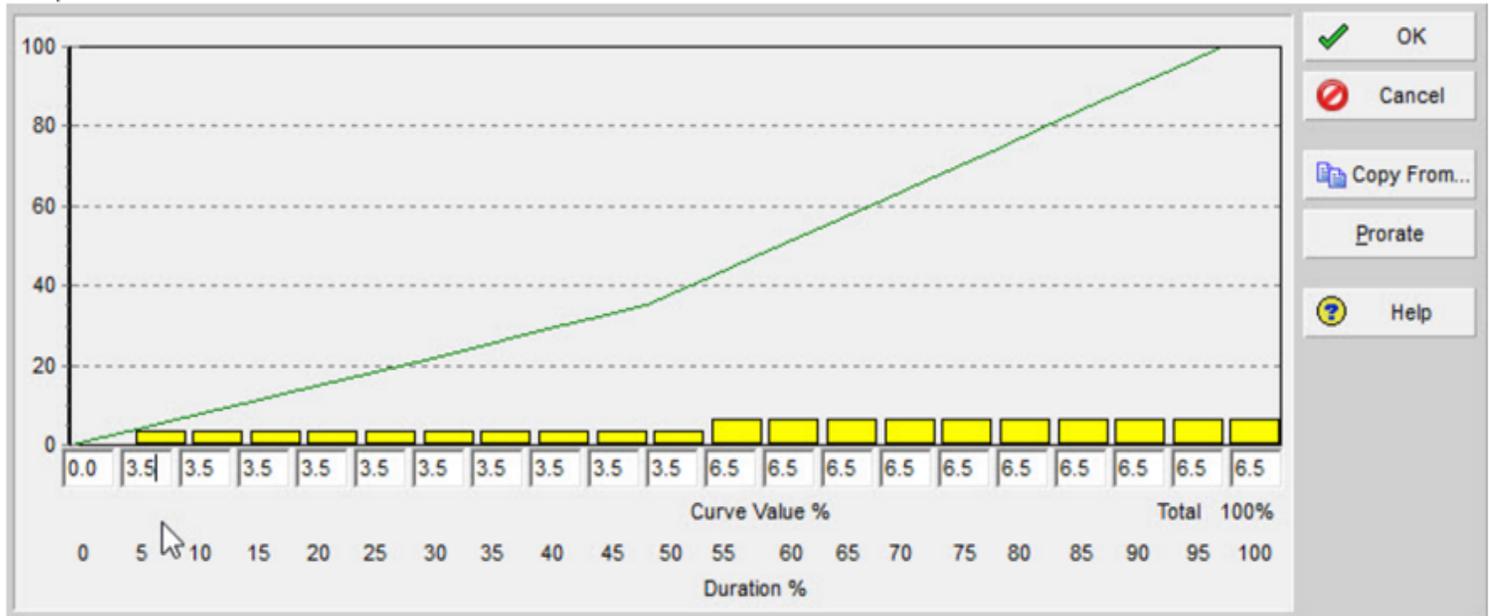
Sample Project Spend Curve

Sample Date Entries Required

Incremental Curve Value
Duration % Increment

0.0%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%
0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%	90%	95%	100%

Sample Screenshot from Primavera P6



APPENDIX E
LOCATION MAPS

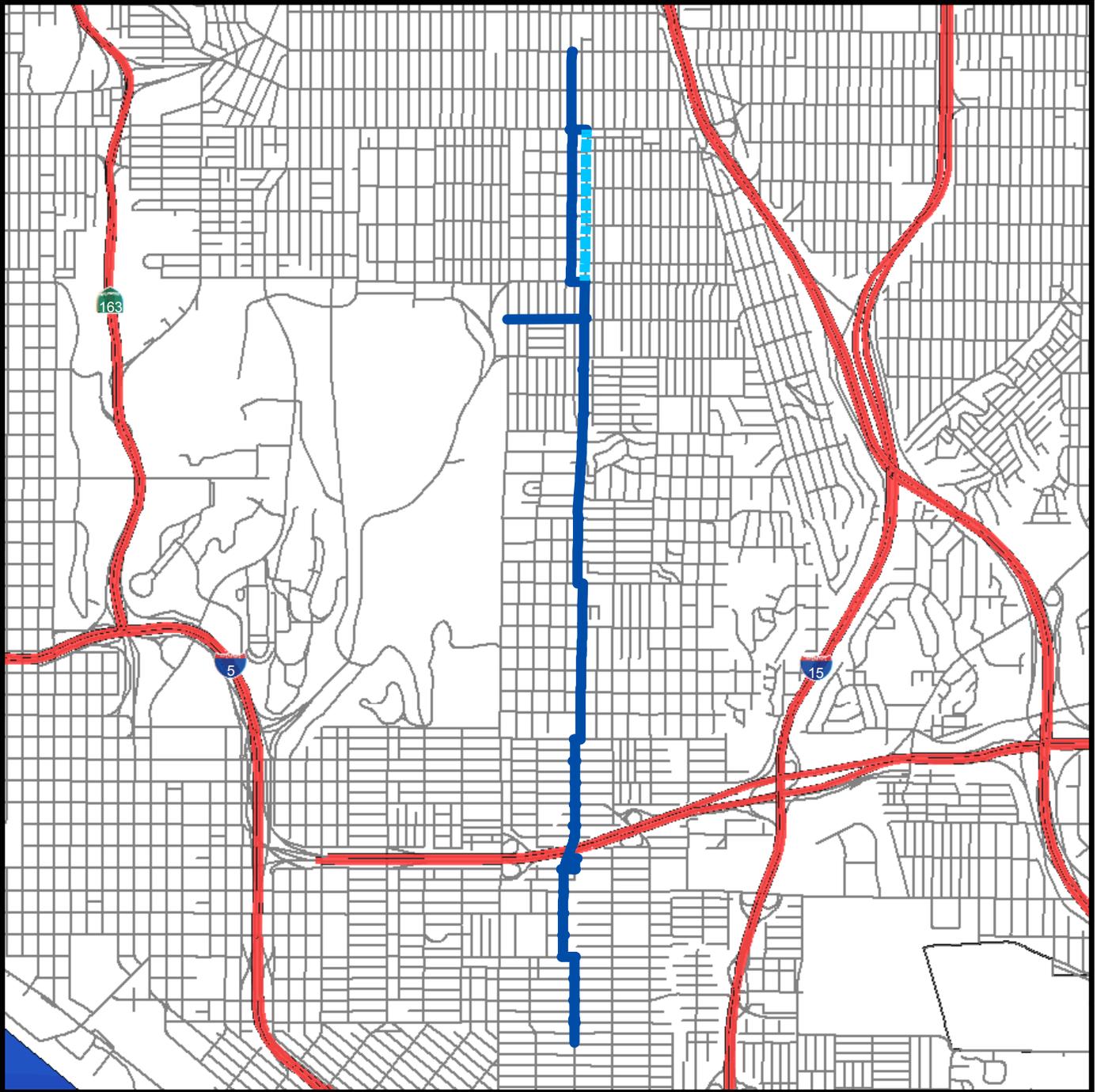
30TH STREET PIPELINE REPLACEMENT

SENIOR ENGINEER
SHEILA BOSE
619-533-4698

PROJECT MANAGER
JONG CHOI
619-533-5493

PROJECT ENGINEER
JENNY JARRELL
619-533-5224

FOR QUESTIONS ABOUT THIS PROJECT
Call: (619) 533-4207
Email: engineering@sandiego.gov



Legend

- - - Water Pipe to Be Abandon
- Proposed Water Pipe



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PREDESIGN LOCATION MAP
**REDWOOD & 30TH
 CR OBSTRUCTION DS**



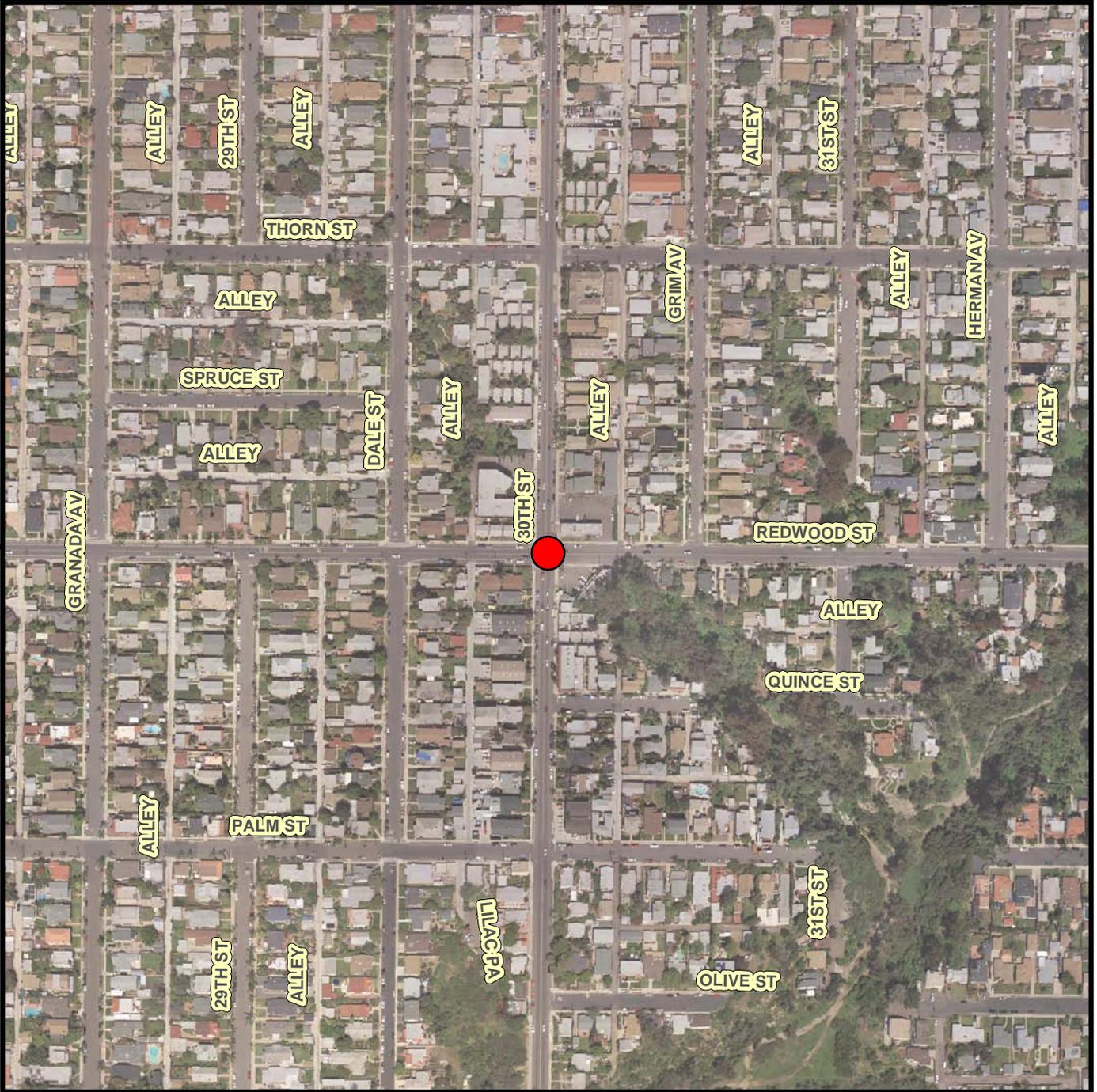
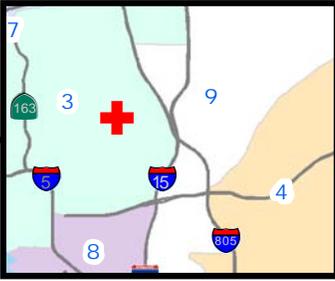
Project Implementation & Technical Services (PITS)
 CIP Preliminary Engineering & Program Coordination

PREDESIGN SENIOR ENGINEER
 NEVIEN ANTOUN
 (619) 533-4852

PREDESIGN PROJECT MANAGER
 NAZIE MANSURY
 (619) 533-3754

PREDESIGN PROJECT ENGINEER
 RAMIN ROSHDIEH
 (619) 533-4490

PREDESIGN DRAFTER
 HOSSAI SHERZAI
 (619) 533-3412



Legend

 **Redwood & 30th CR Obstruction DS**



No Scale

File Path: S:\PITS\PITS-CIP-Preliminary-Engineering-and-Program-Coordination\Drafting\TEO Transportation\Polk & Menlo CR Obstruction DS\PDF Maps

Community Name: GREATER NORTH PARK

Council District: 3

SAP ID# B-13066

Date: 05-23-13
 30th Street Pipeline Replacement
 Appendix E - Location Maps



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APPENDIX F
ADJACENT PROJECTS

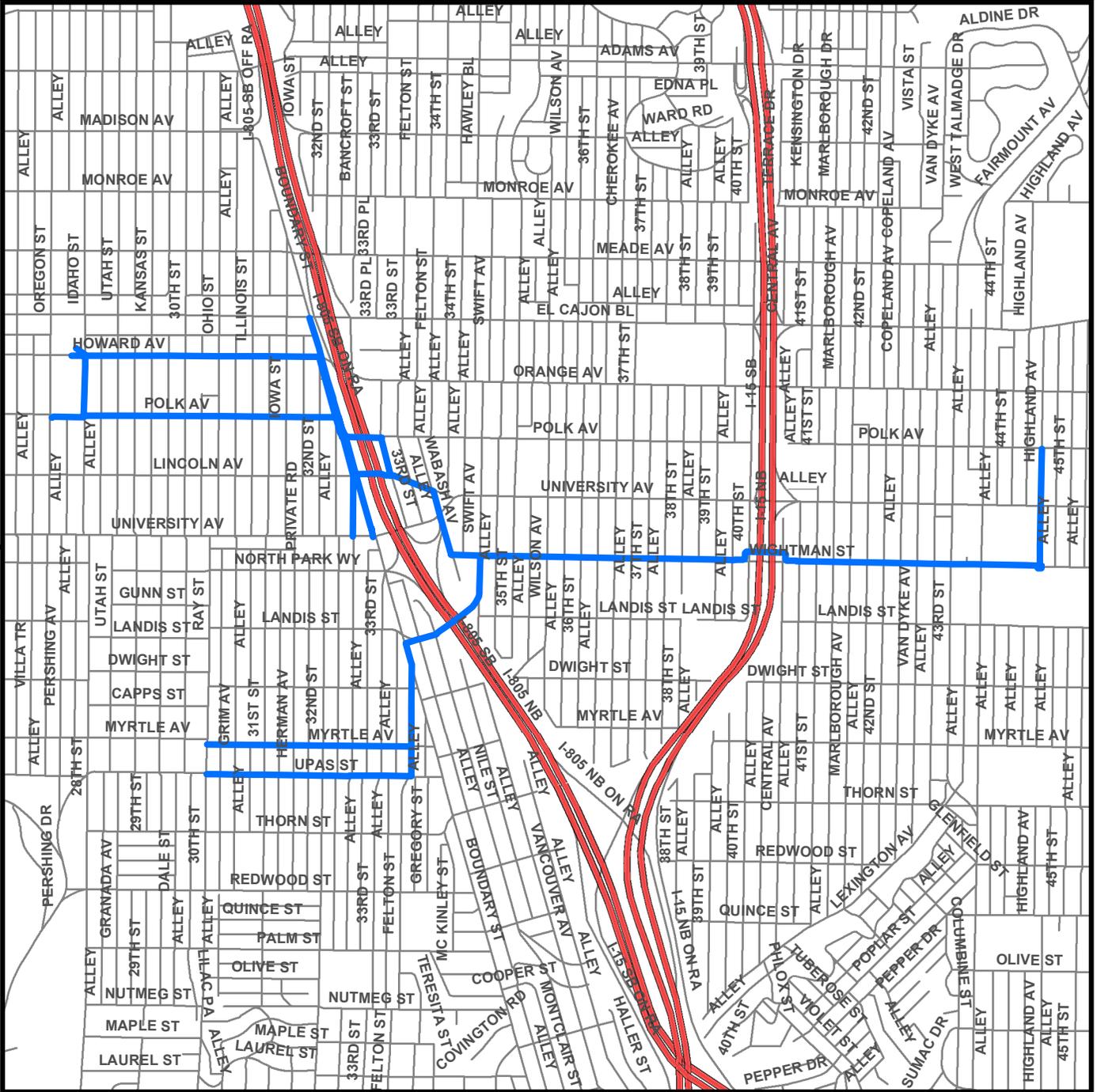
Otay 1st and 2nd Pipelines West of Highland Avenue

SENIOR ENGINEER
Iraj Asgharzadeh
619-533-5105

PROJECT MANAGER
Gabriel Torres
619-533-4630

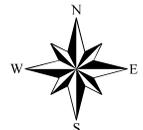
PROJECT ENGINEER
Roy Ganzon
619-533-5247

CONSTRUCTION PROJECT
INFORMATION LINE
(619) 533-4207



Legend

— S12016



COMMUNITY NAME: Greater North Park, Mid City: City Heights

COUNCIL DISTRICT: 3 & 9

Date: November 16, 2015
30th Street Pipeline Replacement
Appendix F - Adjacent Projects



SAP ID: S12016

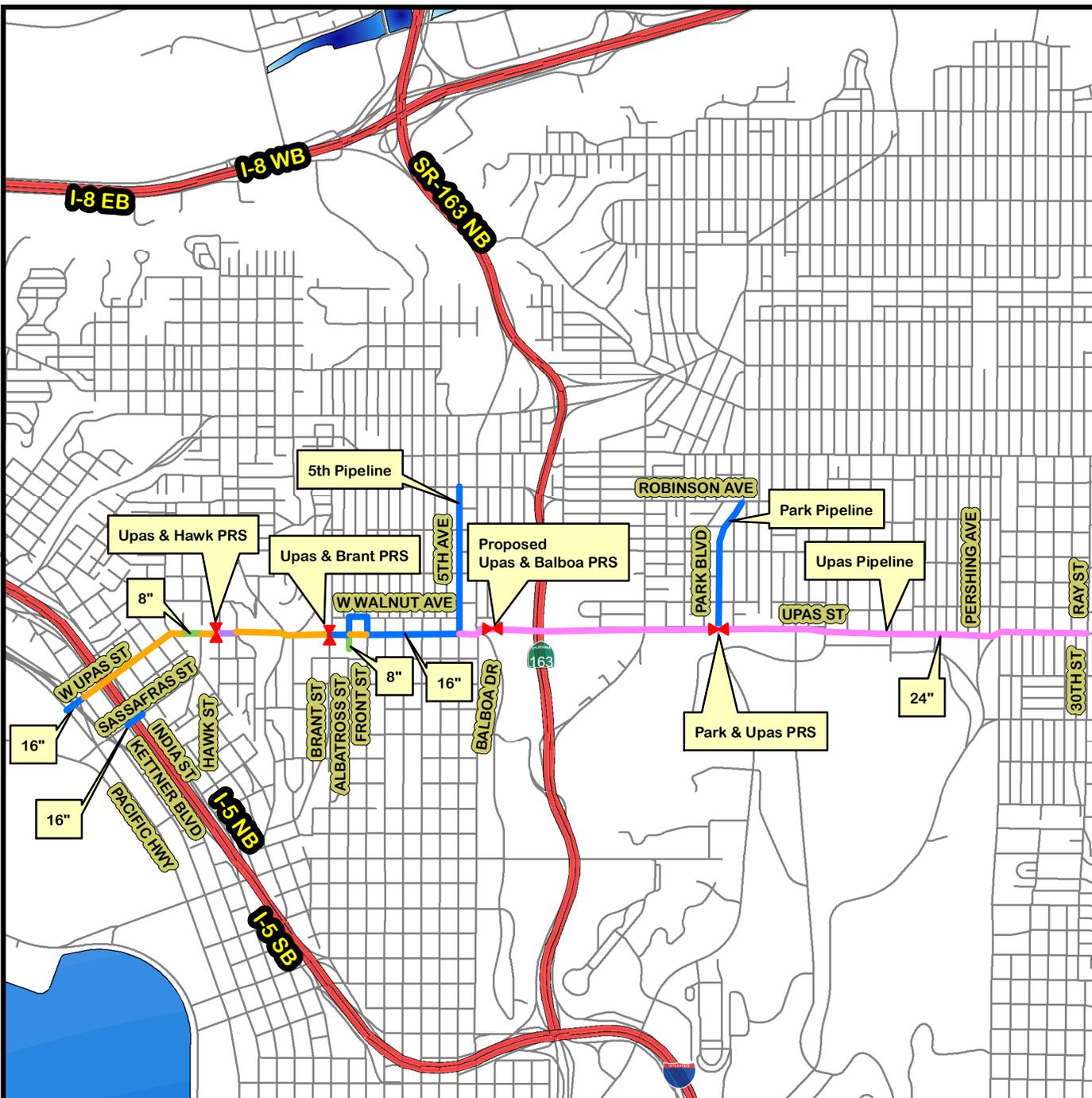


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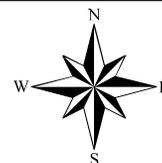
Upas Street Pipeline Replacement

SENIOR ENGINEER IRAJ ASGHARZADEH (619) 533-5105	PROJECT MANAGER ALICE ALTES (619) 533-4105	PROJECT ENGINEER CHRISTINA AWAD (619) 533-4640	FOR QUESTIONS ABOUT THIS PROJECT Call: (619) 533-4207 Email: engineering@sandiego.gov
---	--	--	---



Legend

- Abandon Pipe
- Install 24" Pipe
- Install 16" Pipe
- Install 12" Pipe
- Install 8" Pipe
- X Pressure Regulating Station



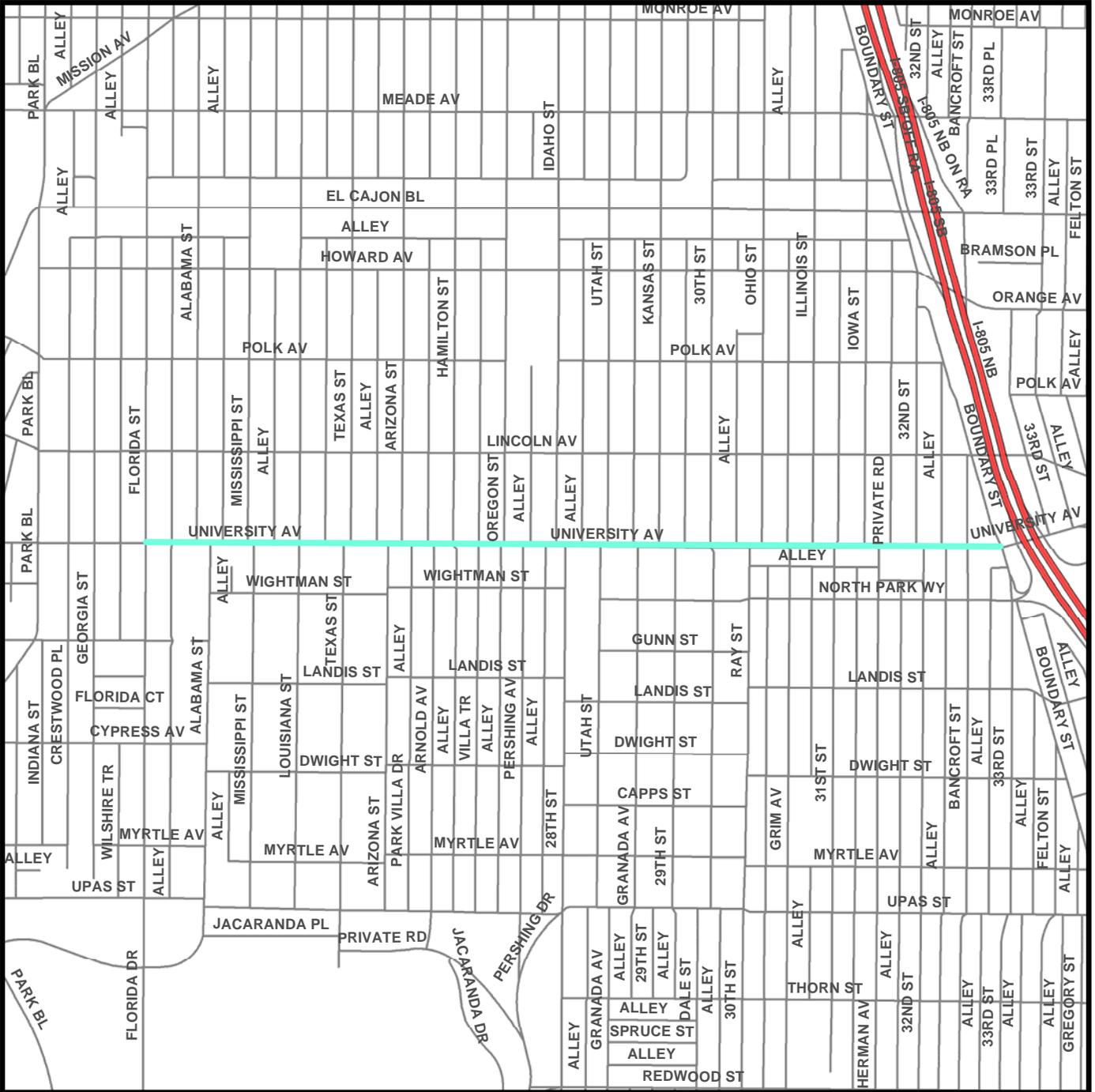
University Avenue Mobility Plan (UAMP)

SENIOR ENGINEER
BRAD JOHNSON
619-533-5120

PROJECT MANAGER
JAYNA STRAUGHN
619-533-5216

PROJECT ENGINEER
GREG ZEITOUNIAN
619-533-4608

CONSTRUCTION PROJECT
INFORMATION LINE
(619) 533-4207



Legend

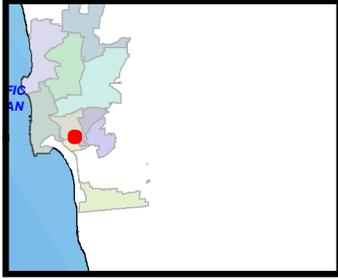
— S00915 - (UAMP) University Avenue Mobility Plan

0 0.075 0.15 0.3 Miles



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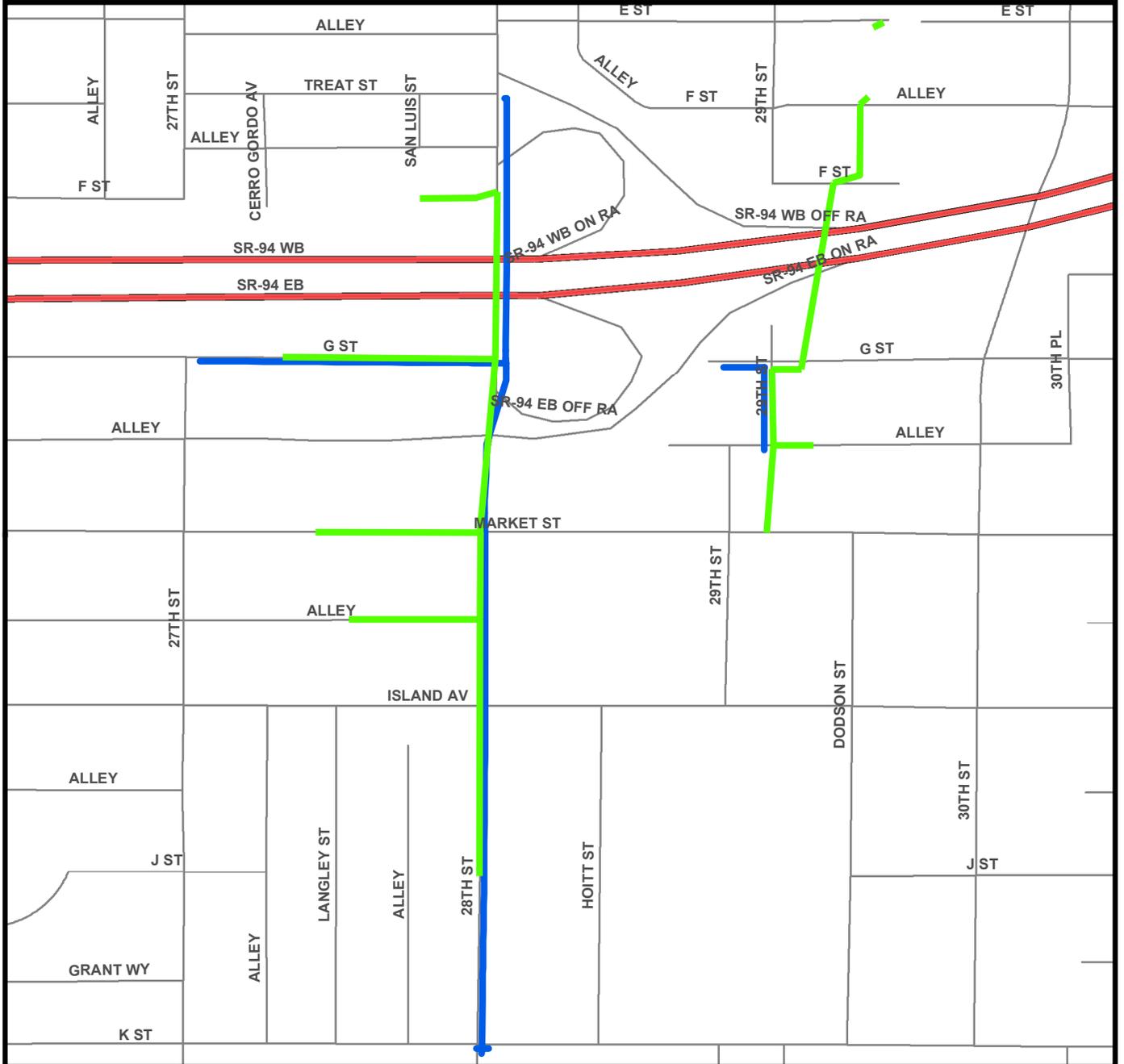
SEWER & AC WATER GROUP 697A

SENIOR ENGINEER
Sheila Bose
(619) 533-4698

PROJECT MANAGER
Elham Lotfi
(619) 533-5212

PROJECT ENGINEER
Bareaz Piromari
(619) 533-5474

FOR QUESTIONS ABOUT THIS PROJECT
Call: (619) 533-4207
Email: engineering@sandiego.gov



Legend

- Prop. Sewer
- Prop. Water



COMMUNITY NAME:
GREATER GOLDEN HILL, SOUTHEASTERN
SAN DIEGO: SOUTHEASTERN

COUNCIL DISTRICT: 3 & 8

SAP ID: B00346(S) \ B15207(W)



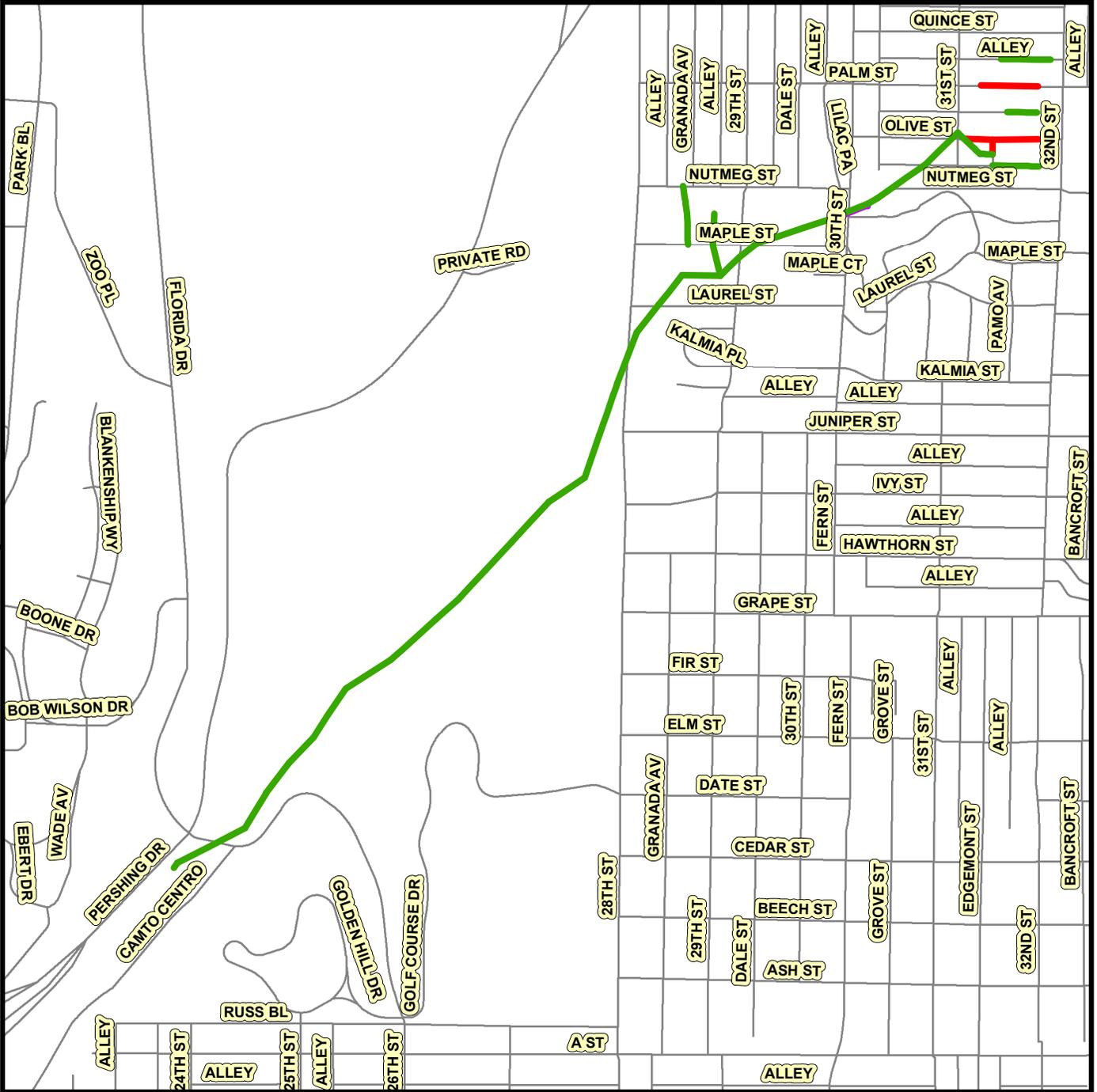


Sewer & Storm Drain Group 828

SENIOR ENGINEER
Andrea Demich
(619)-533-5126

PROJECT MANAGER
Bijan Shakiba
(619)-533-5191

PROJECT ENGINEER
Azin Nour
(619)-533-5227



- Sewer Replace in Place- Trenchless
- Proposed New Sewer-Trenchless
- Proposed New Sewer-Open trench



Sewer Lateral Rehab Project J-2

SENIOR ENGINEER
Michael Ninh
619-533-7443

PROJECT MANAGER
Maryam Liaghat
619-533-5192

PROJECT ENGINEER
Lisa Canning
619-533-4613

CONSTRUCTION PROJECT
INFORMATION LINE
(619) 533-4207



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Legend

- Laterals To Be Rehabbed
- Associated Mains



Date: July 9 2015

COUNCIL DISTRICTS: ALL

SAP ID: B-11061

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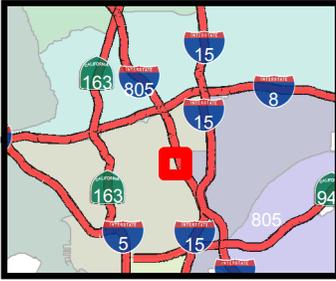
**Lincoln Ave
(30th St to Wabash Ave)**

SENIOR ENGINEER
DAYUE ZHANG
(619) 533-7409

PROJECT MANAGER
ALI ALAEIPOUR
(619) 533-5141

PROJECT ENGINEER
FELIPE MEDINA
(619) 533-5242

FOR QUESTIONS ABOUT THIS PROJECT
Call: (619) 533-4207
Email: engineering@sandiego.gov



Legend

- Full Width Inlay 2" Grind / 3" Pave
- Full Width Inlay 1.5" Grind / 2" Pave

UUP Project Boundary



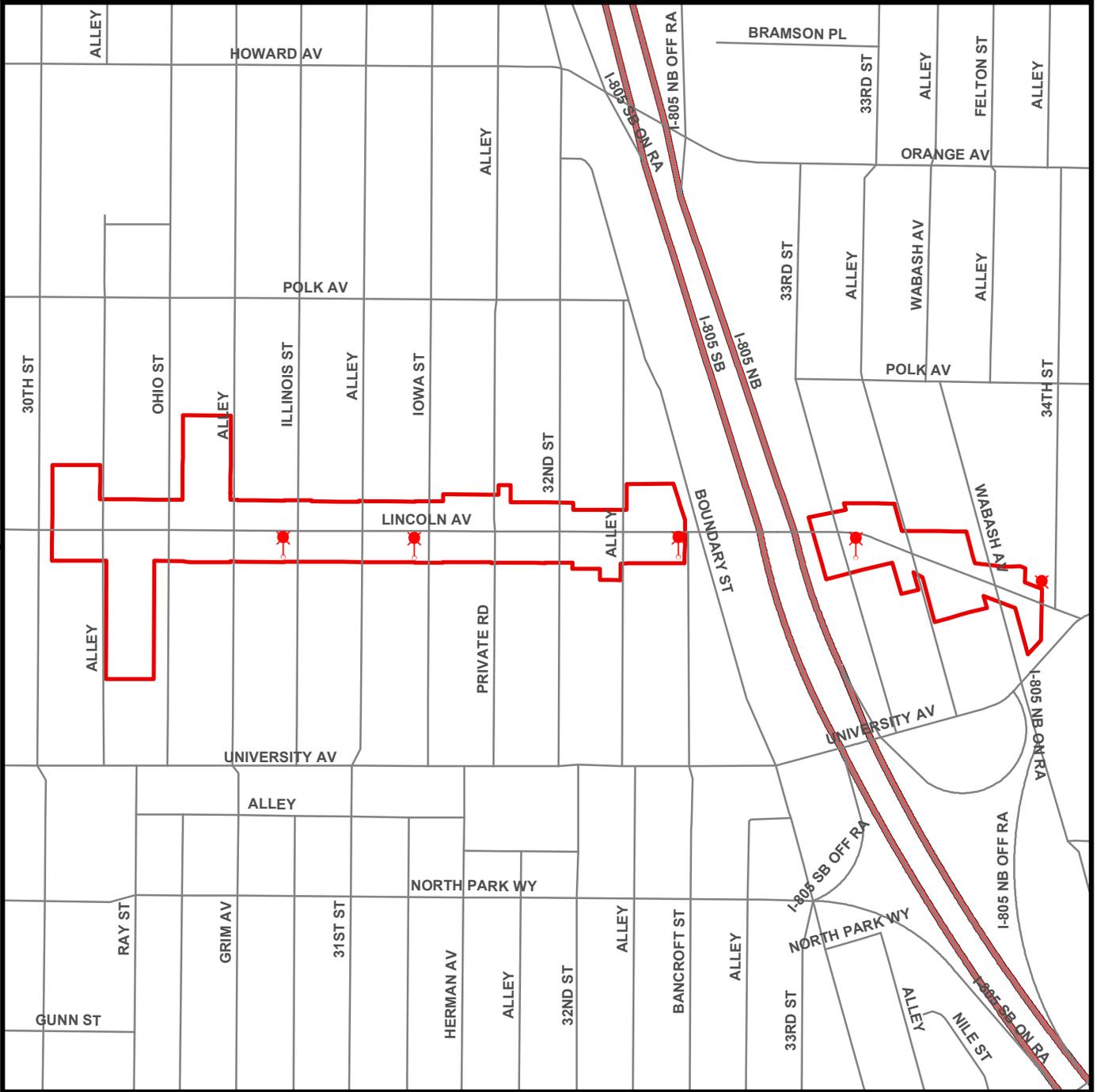
LINCOLN AVE UUD

SENIOR ENGINEER
 LABIB QASEM
 (619) 533-6670

PROJECT MANAGER
 JIE XIAO
 (619) 533-5496



CONSTRUCTION PROJECT
 INFORMATION LINE
 (619) 533-4207



Legend

 STREET LIGHTS TOTAL (5)



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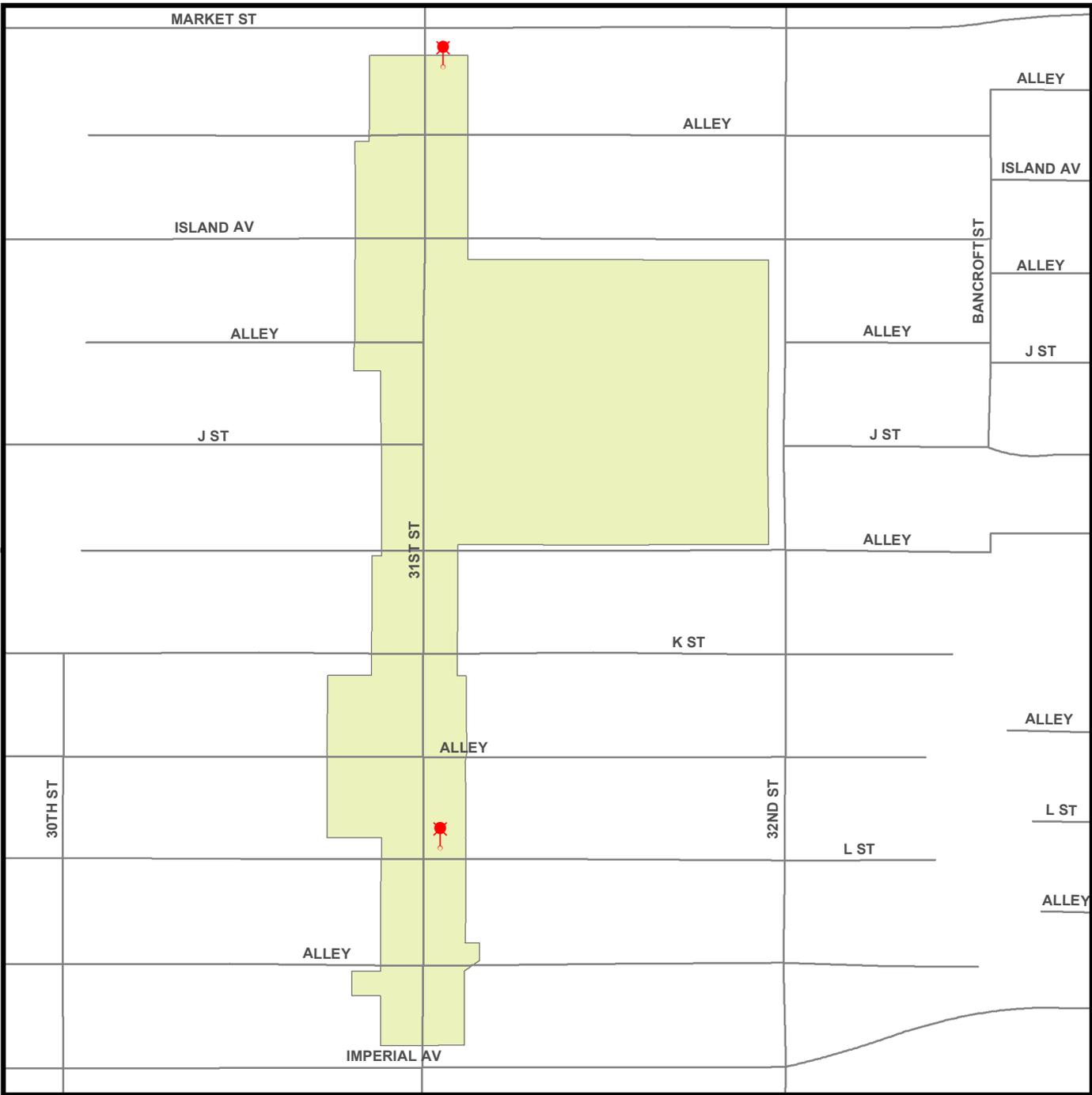
31ST STREET UUD (MARKET - L ST)

SENIOR ENGINEER
LABIB QASEM
(619) 533-6670

PROJECT MANAGER
JIE XIAO
(619) 533-5496



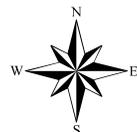
CONSTRUCTION PROJECT
INFORMATION LINE
(619) 533-4207



Legend



STREET LIGHTS TOTAL (2)



COMMUNITY NAME:
SOUTHEASTERN SAN DIEGO



COUNCIL DISTRICT: 8

WBS#B13143



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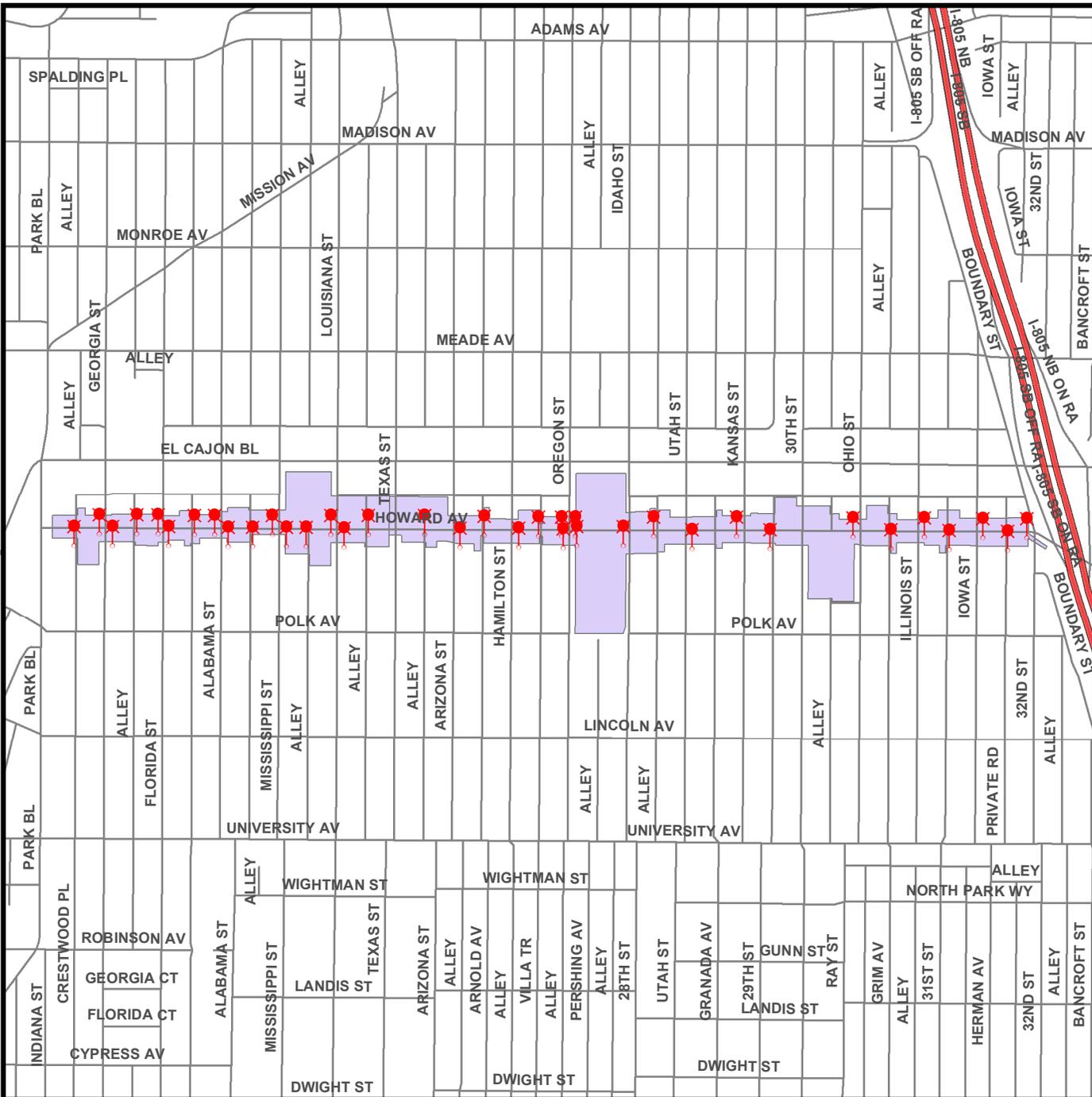
HOWARD AVE UUD (PARK BL - I-805)

SENIOR ENGINEER
 LABIB QASEM
 (619) 533-6670

PROJECT MANAGER
 JIE XIAO
 (619) 533-5496



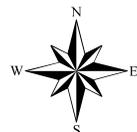
CONSTRUCTION PROJECT
 INFORMATION LINE
 (619) 533-4207



Legend



STREET LIGHTS TOTAL (37)



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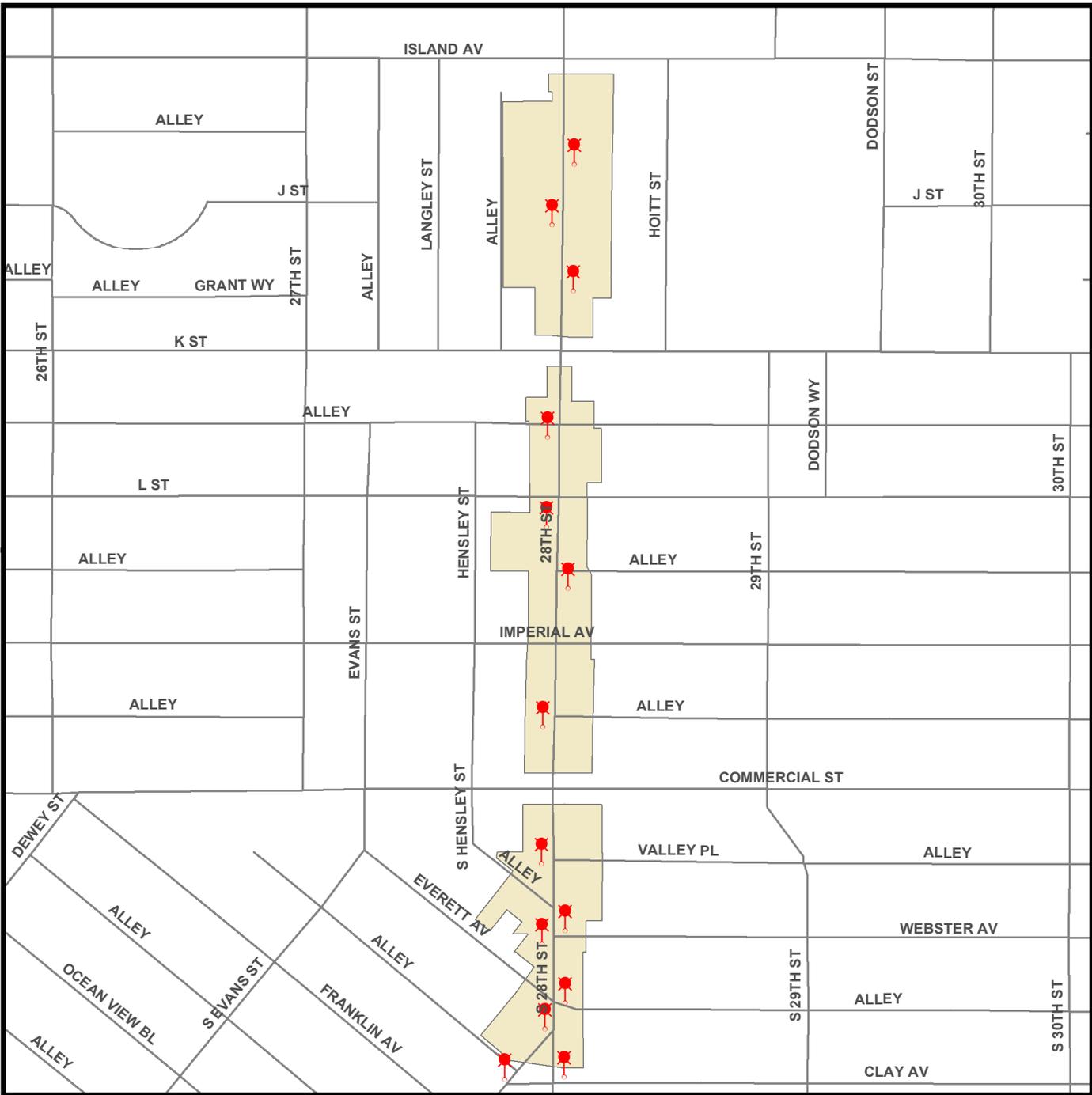
28TH STREET UUD (ISLAND AV - CLAY AV)

SENIOR ENGINEER
 LABIB QASEM
 (619) 533-6670

PROJECT MANAGER
 JIE XIAO
 (619) 533-5496

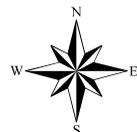


CONSTRUCTION PROJECT
 INFORMATION LINE
 (619) 533-4207



Legend

STREET LIGHTS TOTAL (14)



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PREDESIGN LOCATION MAP
CITY STREET LIGHTS GF GRP 15
CD - 09a



PROJECT IMPLEMENTATION DIVISION (PI)
 CIP PRELIMINARY ENGINEERING & PROGRAM COORDINATION

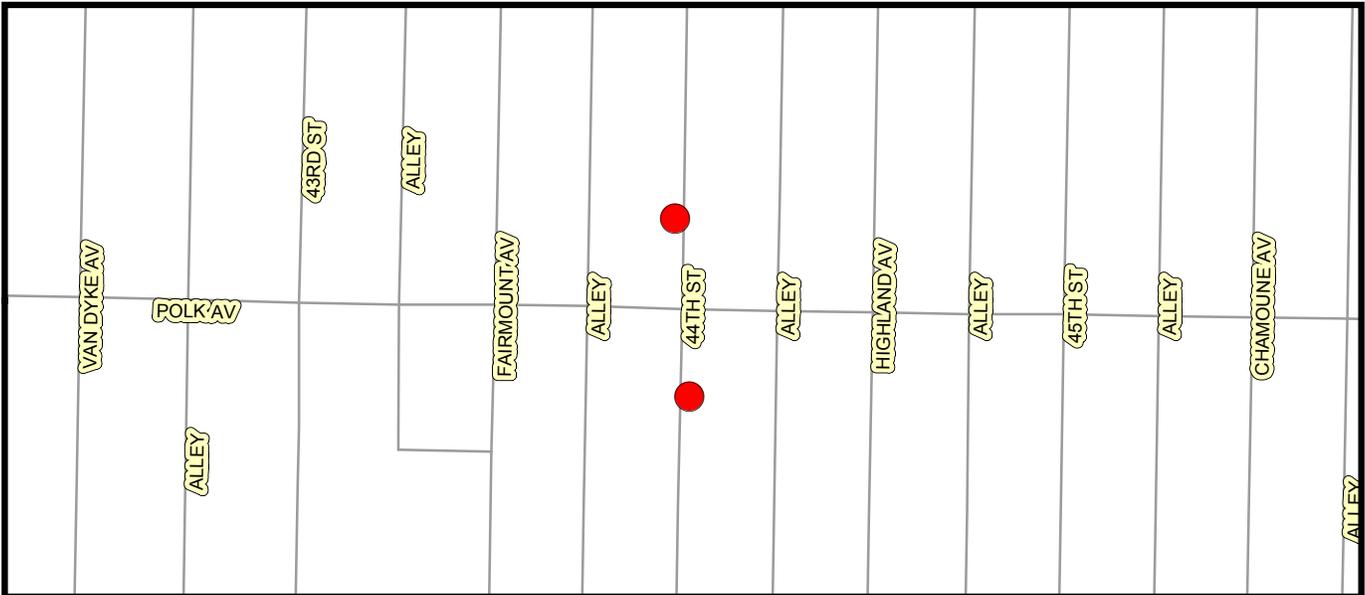
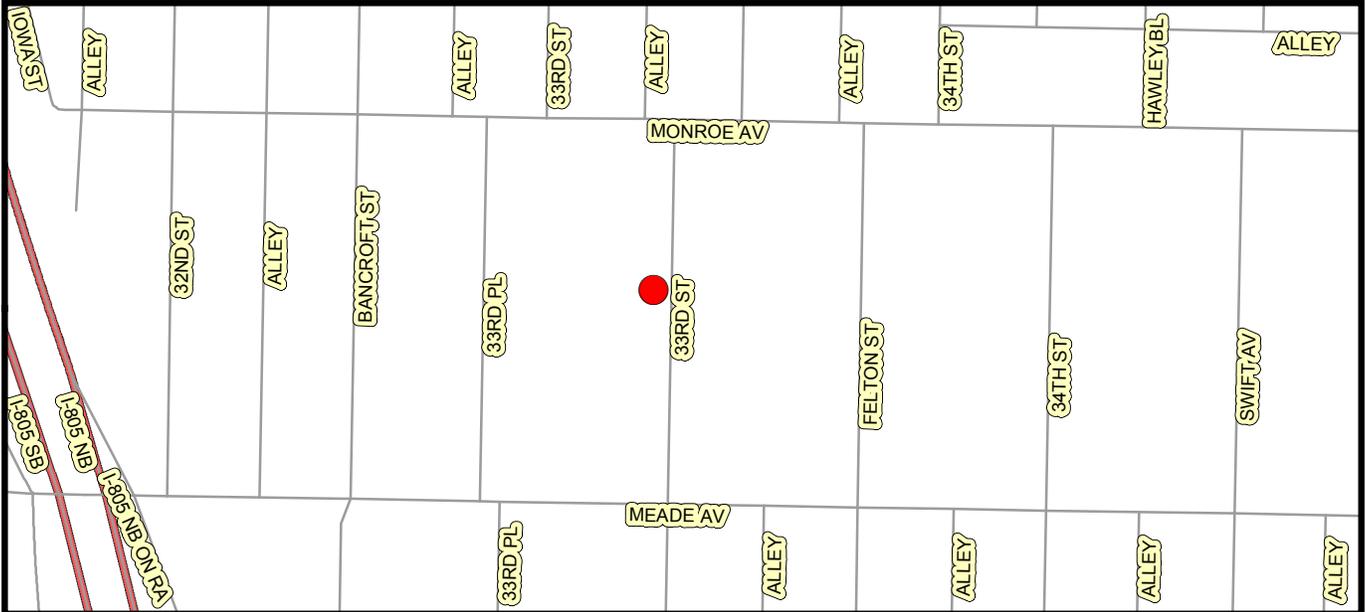
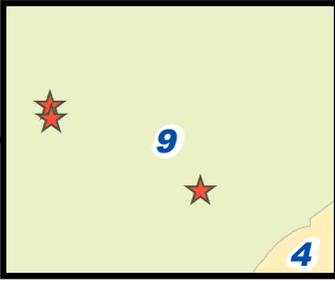
PREDESIGN SENIOR
 ENGINEER
 NEVIEN ANTOUN
 619-533-4852

PREDESIGN PROJECT MANAGER
 NITSUH ABERRA
 619-533-3167

PREDESIGN PROJECT ENGINEER
 ROSALBA HURTADO
 619-533-3478

PREDESIGN DRAFTER
 HOSSAI SHERZAI
 619-533-3412

30 of 31



Legend

- 33rd St South of Monroe Ave 304', West Side
- 44TH Street, South of Polk Ave 150', East Side
- 44TH Street, North of Polk Ave 160', West Side



Not to Scale



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PREDESIGN LOCATION MAP

CITY STREET LIGHTS GF GRP 15

CD - 09b

PREDESIGN SENIOR ENGINEER
NEVIEN ANTOUN
619-533-4852

PREDESIGN PROJECT MANAGER
NITSUH ABERRA
619-533-3167

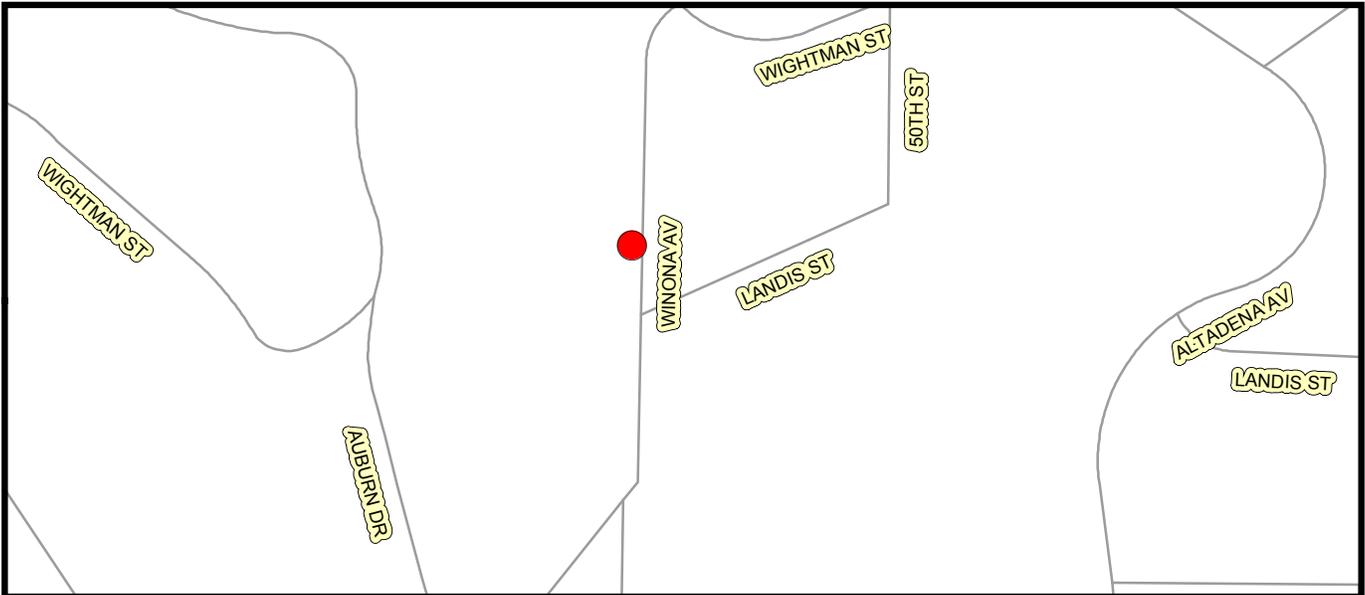
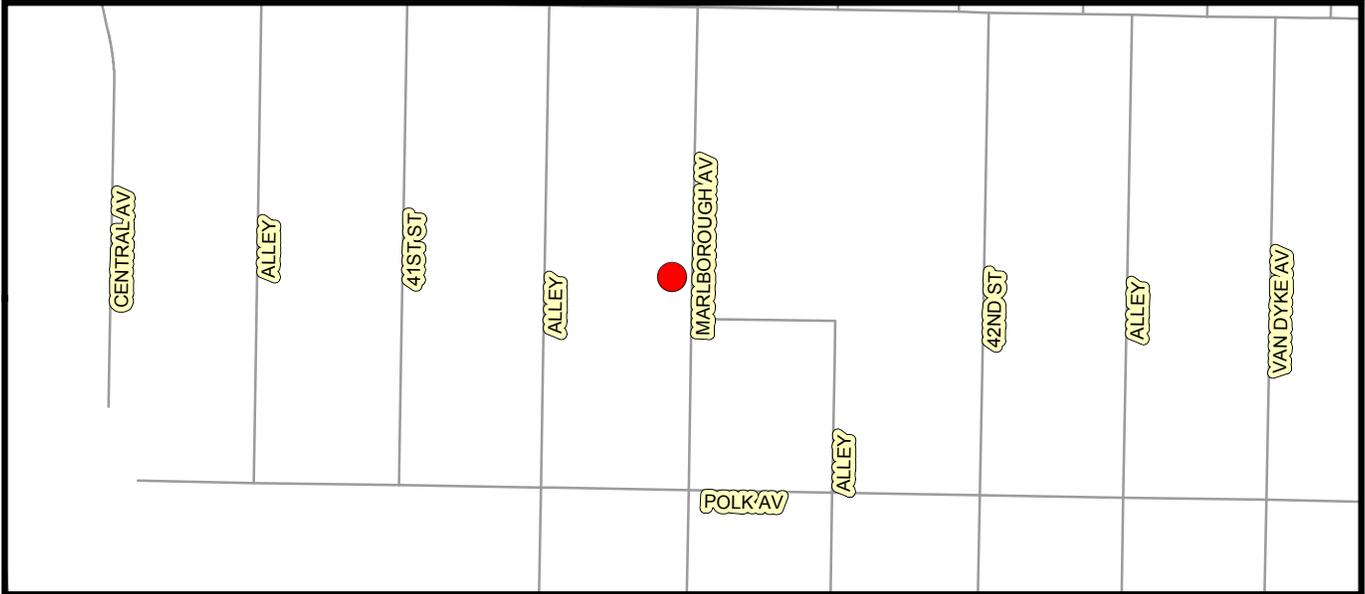
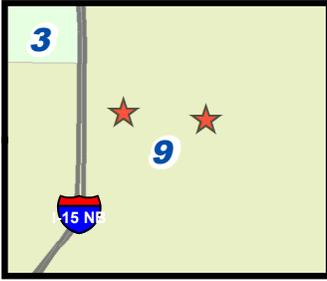
PREDESIGN PROJECT ENGINEER
ROSALBA HURTADO
619-533-3478

PREDESIGN DRAFTER
HOSSAI SHERZAI
619-533-3412



PROJECT IMPLEMENTATION DIVISION (PI)
CIP PRELIMINARY ENGINEERING & PROGRAM COORDINATION

31 of 31



Legend

- Marlborough Avenue, South of Orange Ave 351', West Side
- Winona Avenue, South of Wightman Street 330', West Side



No Scale



PREDESIGN LOCATION MAP
GOLDEN HILL and SOUTH PARK
SD REPLACEMENT



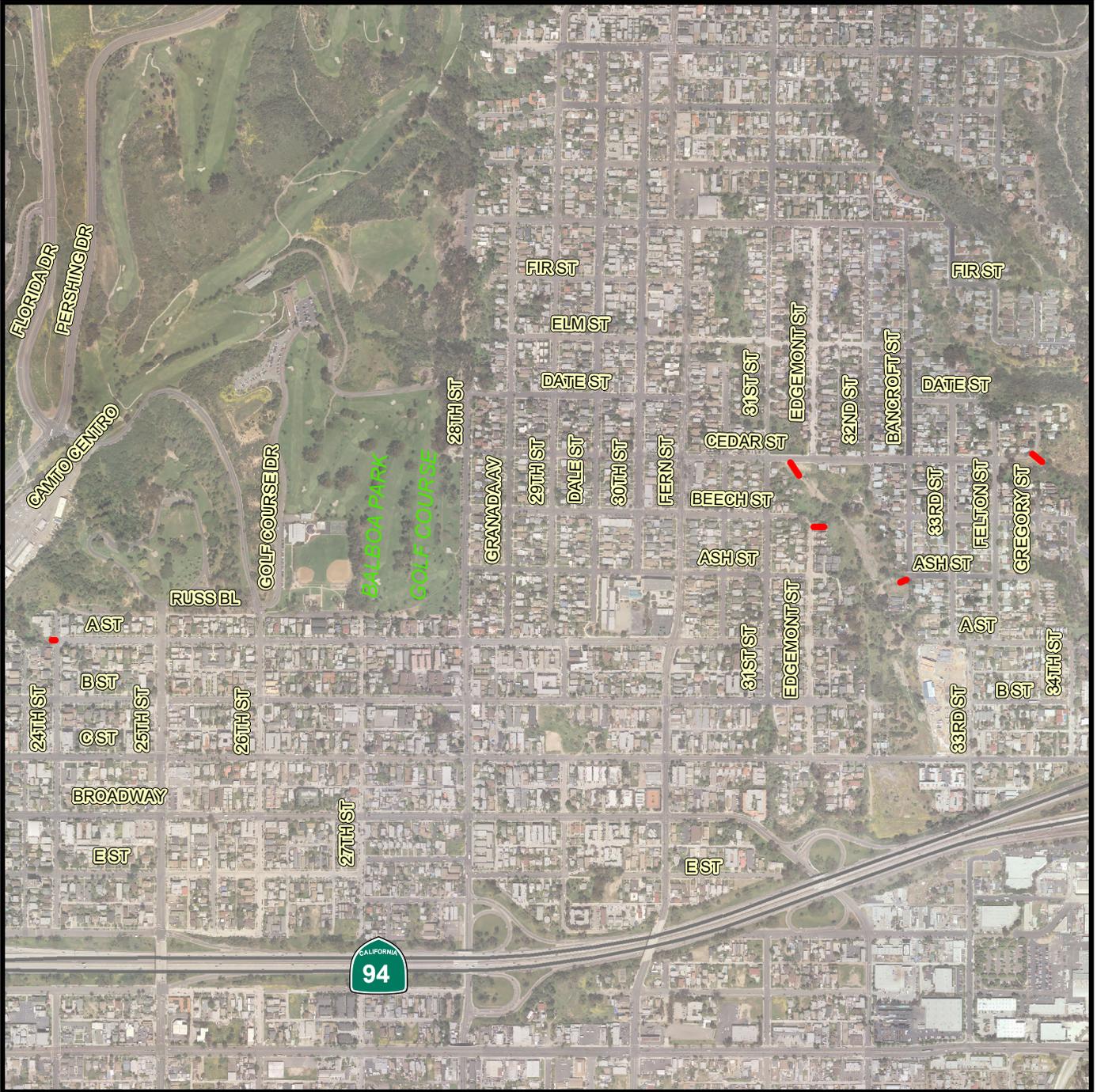
PROJECT IMPLEMENTATION DIVISION

PREDESIGN SENIOR ENGINEER
 SUMER HASENIN
 (619) 533-4102

PREDESIGN PROJECT MANAGER
 CRAIG HOENES
 (619) 533-3783

PREDESIGN PROJECT ENGINEER
 CECILIA MARISTELA
 (619) 533-7420

PREDESIGN DRAFTER
 STEVE BLANTZ
 (619) 533-3486



Legend

 Proposed Storm Drains to be Replaced



No Scale

Document Path: S:\PITS\PITS-CIP-Preliminary-Engineering-and-Program-Coordination\PE Reports Files\B-15165 - Golden Hill & South Park SD Replacement\PDF Maps\PreDesign Location Map.mxd

Community Name: Greater Golden Hill

Council District: 3

SAP ID# B15165

Date: 5/2/2016
 30th Street Pipeline Replacement
 Appendix F - Adjacent Projects



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APPENDIX G

MONTHLY DRINKING WATER DISCHARGE MONITORINGFORM

Receiving Water Monitoring

1) Go to the location where the discharge enters the receiving water.

- Accessible
 Unable to Determine
 No Safe Access

2) If accessible, take pictures and complete the visual monitoring table below. If unable to determine, notify the RE. If no safe access, stop here.

Visual Monitoring		
<u>Is the discharge into the receiving water...</u>		
...causing erosion	<input type="checkbox"/> Yes	<input type="checkbox"/> NO
...carrying floating or suspended matter	<input type="checkbox"/> Yes	<input type="checkbox"/> NO
...causing discoloration	<input type="checkbox"/> Yes	<input type="checkbox"/> NO
...causing and impact to the aquatic life present	<input type="checkbox"/> Yes	<input type="checkbox"/> NO
...observed with visible film	<input type="checkbox"/> Yes	<input type="checkbox"/> NO
...observed with an sheen or coating	<input type="checkbox"/> Yes	<input type="checkbox"/> NO
...causing potential nuisance conditions	<input type="checkbox"/> Yes	<input type="checkbox"/> NO

3) If all answers are no, stop here. If any answers are yes, take pictures, document and immediately notify the RE

Instructions

- 1) Summarize the location of the discharge by connection location. For example: Albatross St (4th Av to 5th Av). Include the start date and time and the end date and time
- 2) Please select either scheduled or emergency. Scheduled discharges are those that the City knows in advance, for example CIP group jobs. Emergency discharges are those un planned discharges that the City is unaware of until after the discharge has commenced. PWD will only report on emergencies associated with CIP projects.
- 3) Select chlorinated, >1 acre-foot, well development or rehabilitation, or other discharges. Chlorinated are discharges of water that is dosed with chlorine in order to adequately sanitize and disinfect drinking water system facilities. Discharges >1 acre-foot are large discharges that are greater than 325,850 gallons, are not chlorinated, or not from a groundwater well. Chollas Creek are discharge located in the Chollas HSA, No. 908.22 as designated on the plans. Groundwater wells are projects associated with wells including development and rehabilitation.
- 4) Sampling Requirements:

Category	Measure	Limit
Emergency	Volume, Estimate	N/A
Chlorinated	Volume, Estimate	N/A
	Chlorine, Field	0.10 mg/L
	Turbidity, Visual	20 NTU (surface water) or 225 NTU (ocean)
	Estimate	
>1 ac-ft (325,850 gal)	pH, Field	6.0 to 9.0
	Volume, estimate	N/A
	Chlorine, Field	0.10 mg/L
	Turbidity, Visual	20 NTU (surface water) or 225 NTU (ocean)
Additional for Chollas Creek	Estimate	
	pH, Field	6.0 to 9.0
	Total Hardness (Lab)	
	Copper (Lab)	
	Lead (Lab)	
	Zinc (Lab)	

Revised 3/8/2017

Use Additional Sheets as necessary

Submit completed form to Resident Engineer at end of month

APPENDIX H
CALTRANS ENCROACHMENT PERMIT

CITY OF SAN DIEGO
11-16-NUB-0163
MARCH 23, 2017
PAGE TWO

The following District Standard Special Provisions are generalizations of the Department Standard Specifications and are included only as a Permittee convenience. Permittee's attention is directed to the current Department Standard Specifications for complete, unabridged, specification requirements.

Once begun, that portion of the work within the State Highway right of way shall be prosecuted to completion as rapidly as possible.

All personnel on foot within the State Highway right of way shall wear personal protective equipment, including safety glasses, hard hats and American National Standards Institute (ANSI) compliant Class II vests. In addition, all personnel working at night, on foot within the State Highway right of way shall wear ANSI Class III warning garments.

The Permittee is responsible for locating and protecting all utilities both underground and aerial. Any costs incurred for locating and protecting and/or relocating any utilities shall be borne by the Permittee.

Permittee's Contractor is responsible for the actual cost of inspection, which may be more or less than the deposit. Permittee's Contractor will also be responsible for the actual cost of mark-out by Caltrans personnel. A bill or refund shall be sent upon satisfactory completion of the work. Payment of any bill is a condition of the permit.

The State of California, Department of Transportation, makes no assurance or expressed warranty that the plans are complete or that the planned construction fits field conditions. Should additional work or modifications of the work be required in order to meet established Department Standards or in order to fit field conditions, the work shall be performed by Permittee as directed by the State's Inspector at no cost to the State.

All work shall be coordinated with the State highway contractor's operations and under no circumstances shall the work granted herein interfere. All standards of construction shall be identical to similar work performed under adjacent highway contract.

Notwithstanding General Provision No. 4, your contractor is required to apply for and obtain an encroachment permit prior to starting work. A fee/deposit of \$11,644.00 is required at the time of application. Also, your contractor must submit proof that they have obtained executed bonds in accordance with General Provision No. 24.

Notwithstanding General Provision 24, the Permittee's bonds shall remain in full force through completion of the work and acceptance by the Department. The Department will release the Permittee's bonds upon fulfillment of all obligations under this permit.

CITY OF SAN DIEGO
11-16-NUB-0163
MARCH 23, 2017
PAGE THREE

All work shall be performed in accordance with the current Department of Transportation Standard Specifications and the Department of Transportation Encroachment Permit Underground Utility Provisions dated March, 2013.

Traffic control when permitted or directed by the State's Inspector, shall consist of closing shoulder in accordance with attached Caltrans 2015 Standard Plans RSPT-9, T-11, and the attached TRAFFIC CONTROL PLANS, Part 6 "Temporary Traffic Control" of the California Manual on Uniform Traffic Control Devices (California MUTCD) 2014 Edition, Section 12 "Temporary Traffic Control" of Caltrans 2015 Standard Specifications, and these Special Provisions.

Permittee shall implement and maintain the attached WPCP, dated as approved March 14, 2016 and as directed and approved by the State's Inspector.

The provisions in this section will not relieve the Permittee from his responsibility to provide such additional devices or take such measures as may be necessary to comply with the provisions in Section 7-1.04, of the Standard Specifications.

Upon completion of the work, the attached card shall be completed and returned.

STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION
ENCROACHMENT PERMIT GENERAL PROVISIONS
TR-0045 (REV. 05/2007)

1. **AUTHORITY:** The Department's authority to issue encroachment permits is provided under, Div. 1, Chpt. 3, Art. 1, Sect. 660 to 734 of the Streets and Highways Code.
2. **REVOCACTION:** Encroachment permits are revocable on five days notice unless otherwise stated on the permit and except as provided by law for public corporations, franchise holders, and utilities. These General Provisions and the Encroachment Permit Utility Provisions are subject to modification or abrogation at any time. Permittees' joint use agreements, franchise rights, reserved rights or any other agreements for operating purposes in State highway right of way are exceptions to this revocation.
3. **DENIAL FOR NONPAYMENT OF FEES:** Failure to pay permit fees when due can result in rejection of future applications and denial of permits.
4. **ASSIGNMENT:** No party other than the permittee or permittee's authorized agent is allowed to work under this permit.
5. **ACCEPTANCE OF PROVISIONS:** Permittee understands and agrees to accept these General Provisions and all attachments to this permit, for any work to be performed under this permit.
6. **BEGINNING OF WORK:** When traffic is not impacted (see Number 35), the permittee shall notify the Department's representative, two (2) days before the intent to start permitted work. Permittee shall notify the Department's Representative if the work is to be interrupted for a period of five (5) days or more, unless otherwise agreed upon. All work shall be performed on weekdays during regular work hours, excluding holidays, unless otherwise specified in this permit.
7. **STANDARDS OF CONSTRUCTION:** All work performed within highway right of way shall conform to recognized construction standards and current Department Standard Specifications, Department Standard Plans High and Low Risk Facility Specifications, and Utility Special Provisions. Where reference is made to "Contractor and Engineer," these are amended to be read as "Permittee and Department representative."
8. **PLAN CHANGES:** Changes to plans, specifications, and permit provisions are not allowed without prior approval from the State representative.
9. **INSPECTION AND APPROVAL:** All work is subject to monitoring and inspection. Upon completion of work, permittee shall request a final inspection for acceptance and approval by the Department. The local agency permittee shall not give final construction approval to its contractor until final acceptance and approval by the Department is obtained.
10. **PERMIT AT WORKSITE:** Permittee shall keep the permit package or a copy thereof, at the work site and show it upon request to any Department representative or law enforcement officer. If the permit package is not kept and made available at the work site, the work shall be suspended.
11. **CONFLICTING ENCROACHMENTS:** Permittee shall yield start of work to ongoing, prior authorized, work adjacent to or within the limits of the project site. When existing encroachments conflict with new work, the permittee shall bear all cost for rearrangements, (e.g., relocation, alteration, removal, etc.).
12. **PERMITS FROM OTHER AGENCIES:** This permit is invalidated if the permittee has not obtained all permits necessary and required by law, from the Public Utilities Commission of the State of California (PUC), California Occupational Safety and Health Administration (Cal-OSHA), or any other public agency having jurisdiction.
13. **PEDESTRIAN AND BICYCLIST SAFETY:** A safe minimum passageway of 4' shall be maintained through the work area at existing pedestrian or bicycle facilities. At no time shall pedestrians be diverted onto a portion of the street used for vehicular traffic. At locations where safe alternate passageways cannot be provided, appropriate signs and barricades shall be installed at the limits of construction and in advance of the limits of construction at the nearest crosswalk or intersection to detour pedestrians to facilities across the street. Attention is directed to Section 7-1.09 Public Safety of the Department Standard Specifications.
14. **PUBLIC TRAFFIC CONTROL:** As required by law, the permittee shall provide traffic control protection warning signs, lights, safety devices, etc., and take all other measures necessary for traveling public's safety. While providing traffic control, the needs and control of all road users [motorists, bicyclists and pedestrians, including persons with disabilities in accordance with the Americans with Disabilities Act of 1990 (ADA)] shall be an essential part of the work activity.

Day and night time lane closures shall comply with the California Manual on Uniform Traffic Control Devices (Part 6, Temporary Traffic Control), Standard Plans, and Standard Specifications for traffic control systems. These General Provisions are not intended to impose upon the permittee, by third parties, any duty or standard of care, greater than or different from, as required by law.
15. **MINIMUM INTERFERENCE WITH TRAFFIC:** Permittee shall plan and conduct work so as to create the least possible inconvenience to the traveling public; traffic shall not be unreasonably delayed. On conventional highways, permittee shall place properly attired flagger(s) to stop or warn the traveling public in compliance with the California Manual on Uniform Traffic Control Devices (Chapter 6E, Flagging Control).
16. **STORAGE OF EQUIPMENT AND MATERIALS:** The storage of equipment or materials is not allowed within State highway right-of-way, unless specified within the Special Provisions of this specific encroachment permit. If Encroachment Permit Special Provisions allow for the storage of equipment or materials within the State right of way, the equipment and material storage shall comply with Standard Specifications, Standard Plans, Special Provisions, and the Highway Design Manual. The clear recovery zone widths must be followed and are the minimum desirable for the type of facility indicated below: freeways and expressways - 30', conventional highways (no curbs) - 20', conventional highways (with curbs) - 1.5'. If a fixed object cannot be eliminated, moved outside the clear recovery zone, or modified to be made yielding, it should be shielded by a guardrail or a crash cushion.
17. **CARE OF DRAINAGE:** Permittee shall provide alternate drainage for any work interfering with an existing drainage facility in compliance with the Standard Specifications, Standard Plans and/or as directed by the Department's representative.
18. **RESTORATION AND REPAIRS IN RIGHT OF WAY:** Permittee is responsible for restoration and repair of State highway right of way resulting from permitted work (State Streets and Highways Code, Sections 670 et. seq.).

19. **RIGHT OF WAY CLEAN UP:** Upon completion of work, permittee shall remove and dispose of all scraps, brush, timber, materials, etc. off the right of way. The aesthetics of the highway shall be as it was before work started.
20. **COST OF WORK:** Unless stated in the permit, or a separate written agreement, the permittee shall bear all costs incurred for work within the State right of way and waives all claims for indemnification or contribution from the State.
21. **ACTUAL COST BILLING:** When specified in the permit, the Department will bill the permittee actual costs at the currently set hourly rate for encroachment permits.
22. **AS-BUILT PLANS:** When required, permittee shall submit one (1) set of folded as-built plans within thirty (30) days after completion and approval of work in compliance with requirements listed as follows:
1. Upon completion of the work provided herein, the permittee shall send one vellum or paper set of As-Built plans, to the State representative. Mylar or paper sepia plans are not acceptable.
 2. All changes in the work will be shown on the plans, as issued with the permit, including changes approved by Encroachment Permit Rider.
 3. The plans are to be stamped or otherwise noted AS-BUILT by the permittee's representative who was responsible for overseeing the work. Any original plan that was approved with a State stamp, or Caltrans representative signature, shall be used for producing the As-Built plans.
 4. If As-Built plans include signing or striping, the dates of signing or striping removal, relocation, or installation shall be shown on the plans when required as a condition of the permit. When the construction plans show signing and striping for staged construction on separate sheets, the sheet for each stage shall show the removal, relocation or installation dates of the appropriate staged striping and signing.
 5. As-Built plans shall contain the Permit Number, County, Route, and Post Mile on each sheet.
 6. Disclaimer statement of any kind that differ from the obligations and protections provided by Sections 6735 through 6735.6 of the California Business and Professions Code, shall not be included on the As-Built plans. Such statements constitute non-compliance with Encroachment Permit requirements, and may result in the Department of Transportation retaining Performance Bonds or deposits until proper plans are submitted. Failure to comply may also result in denial of future permits, or a provision requiring a public agency to supply additional bonding.
23. **PERMITS FOR RECORD PURPOSES ONLY:** When work in the right of way is within an area under a Joint Use Agreement (JUA) or a Consent to Common Use Agreement (CCUA), a fee exempt permit is issued to the permittee for the purpose of providing a notice and record of work. The Permittee's prior rights shall be preserved without the intention of creating new or different rights or obligations. "Notice and Record Purposes Only" shall be stamped across the face of the permit.
24. **BONDING:** The permittee shall file bond(s), in advance, in the amount set by the Department. Failure to maintain bond(s) in full force and effect will result in the Department stopping of all work and revoking permit(s). Bonds are not required of public corporations or privately owned utilities, unless permittee failed to comply with the provision and conditions under a prior permit. The surety company is responsible for any latent defects as provided in California Code of Civil Procedures, Section 337.15. Local agency permittee shall comply with requirements established as follows: In recognition that project construction work done on State property will not be directly funded and paid by State, for the purpose of protecting stop notice claimants and the interests of State relative to successful project completion, the local agency permittee agrees to require the construction contractor furnish both a payment and performance bond in the local agency's name with both bonds complying with the requirements set forth in Section 3-1.02 of State's current Standard Specifications before performing any project construction work. The local agency permittee shall defend, indemnify, and hold harmless the State, its officers and employees from all project construction related claims by contractors and all stop notice or mechanic's lien claimants. The local agency also agrees to remedy, in a timely manner and to State's satisfaction, any latent defects occurring as a result of the project construction work.
25. **FUTURE MOVING OF INSTALLATIONS:** Permittee understands and agrees to relocate a permitted installation upon notice by the Department. Unless under prior property right or agreement, the permittee shall comply with said notice at his sole expense.
26. **ARCHAEOLOGICAL/HISTORICAL:** If any archaeological or historical resources are revealed in the work vicinity, the permittee shall immediately stop work, notify the Department's representative, retain a qualified archaeologist who shall evaluate the site, and make recommendations to the Department representative regarding the continuance of work.
27. **PREVAILING WAGES:** Work performed by or under a permit may require permittee's contractors and subcontractors to pay appropriate prevailing wages as set by the Department of Industrial Relations. Inquiries or requests for interpretations relative to enforcement of prevailing wage requirements are directed to State of California Department of Industrial Relations, 525 Golden Gate Avenue, San Francisco, California 94102.
28. **RESPONSIBILITY FOR DAMAGE:** The State of California and all officers and employees thereof, including but not limited to the Director of Transportation and the Deputy Director, shall not be answerable or accountable in any manner for injury to or death of any person, including but not limited to the permittee, persons employed by the permittee, persons acting in behalf of the permittee, or for damage to property from any cause. The permittee shall be responsible for any liability imposed by law and for injuries to or death of any person, including but not limited to the permittee, persons employed by the permittee, persons acting in behalf of the permittee, or for damage to property arising out of work, or other activity permitted and done by the permittee under a permit, or arising out of the failure on the permittee's part to perform his obligations under any permit in respect to maintenance or any other obligations, or resulting from defects or obstructions, or from any cause whatsoever during the progress of the work, or other activity or at any subsequent time, work or other activity is being performed under the obligations provided by and contemplated by the permit.
- The permittee shall indemnify and save harmless the State of California, all officers, employees, and State's contractors, thereof, including but not limited to the Director of Transportation and the Deputy Director, from all claims, suits or actions of every name, kind and description brought for or on account of injuries to or death of any person, including but not limited to the permittee, persons employed by the permittee, persons acting in behalf of the permittee and the public, or damage to property resulting from the performance of work or other activity under the permit, or arising out of the failure on the permittee's part to perform his obligations under any permit in respect to maintenance or any other obligations, or resulting from defects or obstructions, or from any cause whatsoever during the progress of the work, or other activity or at any subsequent time, work or other activity is being performed under the obligations provided by and contemplated by the permit, except as otherwise provided by statute.

The duty of the permittee to indemnify and save harmless includes the duties to defend as set forth in Section 2778 of the Civil Code. The permittee waives any and all rights to any type of expressed or implied indemnity against the State, its officers, employees, and State contractors. It is the intent of the parties that the permittee will indemnify and hold harmless the State, its officers, employees, and State's contractors, from any and all claims, suits or actions as set forth above regardless of the existence or degree of fault or negligence, whether active or passive, primary or secondary, on the part of the State, the permittee, persons employed by the permittee, or acting on behalf of the permittee.

For the purpose of this section, "State's contractors" shall include contractors and their subcontractors under contract to the State of California performing work within the limits of this permit.

29. **NO PRECEDENT ESTABLISHED:** This permit is issued with the understanding that it does not establish a precedent.
30. **FEDERAL CIVIL RIGHTS REQUIREMENTS FOR PUBLIC ACCOMMODATION:**
- A. The permittee, for himself, his personal representative, successors in interest, and assigns as part of the consideration hereof, does hereby covenant and agree that:
1. No person on the grounds of race, color, or national origin shall be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities.
 2. That in connection with the construction of any improvements on said lands and the furnishings of services thereon, no discrimination shall be practiced in the selection and retention of first-tier subcontractors in the selection of second-tier subcontractors.
 3. That such discrimination shall not be practiced against the public in their access to and use of the facilities and services provided for public accommodations (such as eating, sleeping, rest, recreation), and operation on, over, or under the space of the right of way.
 4. That the permittee shall use the premises in compliance with all other requirements imposed pursuant to Title 15, Code of Federal Regulations, Commerce and Foreign Trade, Subtitle A. Office of the Secretary of Commerce, Part 8 (15 C.F.R. Part 8) and as said Regulations may be amended.
 5. That in the event of breach of any of the above nondiscrimination covenants, the State shall have the right to terminate the permit and to re-enter and repossess said land and the land and the facilities thereon, and hold the same as if said permit had never been made or issued.

31. **MAINTENANCE OF HIGHWAYS:** The permittee agrees, by acceptance of a permit, to properly maintain any encroachment. This assurance requires the permittee to provide inspection and repair any damage, at permittee's expense, to State facilities resulting from the encroachment.
32. **SPECIAL EVENTS:** In accordance with subdivision (a) of Streets and Highways Code Section 682.5, the Department of Transportation shall not be responsible for the conduct or operation of the permitted activity, and the applicant agrees to defend, indemnify, and hold harmless the State and the city or county against any and all claims arising out of any activity for which the permit is issued.

The permittee understands and agrees to comply with the obligations of Titles II and III of the Americans with Disabilities Act of 1990 in the conduct of the event, and further agrees to indemnify and save harmless the State of California, all officers and employees thereof, including but not limited to the Director of Transportation, from any claims or liability arising out of or by virtue of said Act.

33. **PRIVATE USE OF RIGHT OF WAY:** Highway right of way shall not be used for private purposes without compensation to the State.

The gifting of public property use and therefore public funds is prohibited under the California Constitution, Article 16.

34. **FIELD WORK REIMBURSEMENT:** Permittee shall reimburse State for field work performed on permittee's behalf to correct or remedy hazards or damaged facilities, or clear debris not attended to by the permittee.
35. **NOTIFICATION OF DEPARTMENT AND TMC:** The permittee shall notify the Department's representative and the Transportation Management Center (TMC) at least 7 days before initiating a lane closure or conducting an activity that may cause a traffic impact. A confirmation notification should occur 3 days before closure or other potential traffic impacts. In emergency situations when the corrective work or the emergency itself may affect traffic, TMC and the Department's representative shall be notified as soon as possible.
36. **SUSPENSION OF TRAFFIC CONTROL OPERATION:** The permittee, upon notification by the Department's representative, shall immediately suspend all lane closure operations and any operation that impedes the flow of traffic. All costs associated with this suspension shall be borne by the permittee.
37. **UNDERGROUND SERVICE ALERT (USA) NOTIFICATION:** Any excavation requires compliance with the provisions of Government Code Section 4216 et. seq., including, but not limited to notice to a regional notification center, such as Underground Service Alert (USA). The permittee shall provide notification at least 48 hours before performing any excavation work within the right of way.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
 REGISTERED CIVIL ENGINEER					
January 20, 2017 PLANS APPROVAL DATE					
					
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					

TO ACCOMPANY PLANS DATED _____

TABLE 1

SPEED (S)	MINIMUM TAPER LENGTH * FOR WIDTH OF OFFSET 12 FEET (W)				MAXIMUM CHANNELIZING DEVICE SPACING		
	TANGENT 2L	MERGING L	SHIFTING L/2	SHOULDER L/3	X	Y	Z **
					TAPER	TANGENT	CONFLICT
mph	ft	ft	ft	ft	ft	ft	ft
20	160	80	40	27	20	40	10
25	250	125	63	42	25	50	12
30	360	180	90	60	30	60	15
35	490	245	123	82	35	70	17
40	640	320	160	107	40	80	20
45	1080	540	270	180	45	90	22
50	1200	600	300	200	50	100	25
55	1320	660	330	220	50	100	25
60	1440	720	360	240	50	100	25
65	1560	780	390	260	50	100	25
70	1680	840	420	280	50	100	25
75	1800	900	450	300	50	100	25

* - For other offsets, use the following merging taper length formula for L:
For speed of 40 mph or less, $L = WS^2/60$
For speed of 45 mph or more, $L = WS$

Where: L = Taper length in feet

W = Width of offset in feet

S = Posted speed limit, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph

** - Use for taper and tangent sections where there are no pavement markings or where there is a conflict between existing pavement markings and channelizers (CA).

TABLE 2

SPEED *	Min D **	DOWNGRADE Min D ***		
		-3%	-6%	-9%
		ft	ft	ft
20	115	116	120	126
25	155	158	165	173
30	200	205	215	227
35	250	257	271	287
40	305	315	333	354
45	360	378	400	427
50	425	446	474	507
55	495	520	553	593
60	570	598	638	686
65	645	682	728	785
70	730	771	825	891
75	820	866	927	1003

* - Speed is posted speed limit, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph

** - Longitudinal buffer space or flagger station spacing

*** - Use on sustained downgrade steeper than -3 percent and longer than 1 mile.

TABLE 3

ROAD TYPE	DISTANCE BETWEEN SIGNS *		
	A	B	C
	ft	ft	ft
URBAN - 25 mph OR LESS	100	100	100
URBAN - MORE THAN 25 mph TO 40 mph	250	250	250
URBAN - MORE THAN 40 mph	350	350	350
RURAL	500	500	500
EXPRESSWAY / FREEWAY	1000	1500	2640

* - The distances are approximate, are intended for guidance purposes only, and should be applied with engineering judgment. These distances should be adjusted by the Engineer for field conditions, if necessary, by increasing or decreasing the recommended distances.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**TRAFFIC CONTROL SYSTEM TABLES
FOR LANE AND RAMP CLOSURES**

NO SCALE

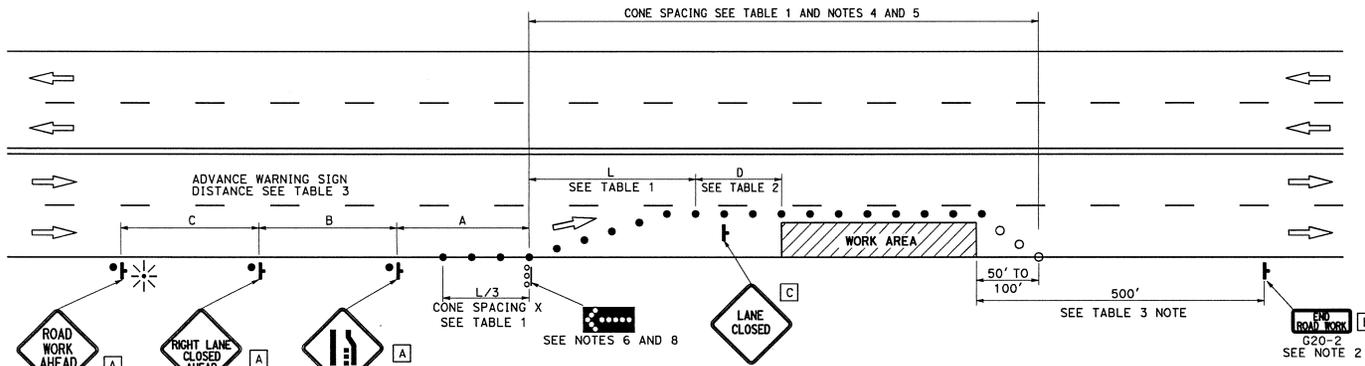
RSP T9 DATED JANUARY 20, 2017 SUPERSEDES STANDARD PLAN T9
DATED OCTOBER 30, 2015 - PAGE 249 OF THE STANDARD PLANS BOOK DATED 2015.

REVISED STANDARD PLAN RSP T9

2015 REVISED STANDARD PLAN RSP T9

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL No. SHEETS

Devin Singh
 REGISTERED CIVIL ENGINEER
 October 30, 2015
 PLANS APPROVAL DATE
 REGISTERED PROFESSIONAL ENGINEER
 Devin Singh
 No. CS0470
 Exp. 6-30-17
 CIVIL
 STATE OF CALIFORNIA
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



TYPICAL LANE CLOSURE

NOTES:

- See Standard Plan T9 for tables.
- Use cone spacing X for taper segment, Y for tangent segment or Z for conflict situations, as appropriate, per Table 1, unless X, Y, or Z cone spacing is shown on this sheet.
- All temporary warning signs shall have black legend on fluorescent orange background.
- California codes are designated by (CA). Otherwise, Federal (MUTCD) codes are shown.

NOTES:

- Each advance warning sign shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" x 16" in size and shall be orange or fluorescent red-orange in color. Flashing beacons shall be placed at the locations indicated for lane closure during hours of darkness.
- A G20-2 "END ROAD WORK" sign, as appropriate, shall be placed at the end of the lane closure unless the end of work area is obvious, or ends within a larger project's limits.
- If the W20-1 sign would follow within 2000' of a stationary W20-1 or G20-1 "ROAD WORK NEXT MILES", use a C20(CA) sign for the first advance warning sign.
- All cones used for lane closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves).
- Portable delineators, placed at one-half the spacing indicated for traffic cones, may be used instead of cones for daytime closures only.
- Flashing arrow sign shall be either Type I or Type II.
- For approach speeds over 50 mph, use the "Traffic Control System for Lane Closure On Freeways And Expressways" plan for lane closure details and requirements.
- A minimum 1500' of sight distance shall be provided where possible for vehicles approaching the first flashing arrow sign. Lane closures shall not begin at the top of crest vertical curve or on a horizontal curve.
- Place a C30(CA) sign every 2000' throughout length of lane closure.
- Median lane closures shall conform to the details shown except that C20(CA)L and W4-2L signs shall be used.
- At least one person shall be assigned to provide full time maintenance of traffic control devices for lane closure unless, otherwise directed by the Engineer.

LEGEND

- TRAFFIC CONE
- TRAFFIC CONE (OPTIONAL TAPER)
- ⊥ TEMPORARY TRAFFIC CONTROL SIGN
- ⬇ FLASHING ARROW SIGN (FAS)
- ⬇ FAS SUPPORT OR TRAILER
- ⊛ PORTABLE FLASHING BEACON

SIGN PANEL SIZE (Min)

- A 48" x 48"
- B 36" x 18"
- C 30" x 30"

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
**TRAFFIC CONTROL SYSTEM
 FOR LANE CLOSURE ON
 MULTILANE CONVENTIONAL
 HIGHWAYS**

NO SCALE

T11

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
ENCROACHMENT PERMIT UNDERGROUND UTILITY PROVISIONS
 TR - 0163 (Rev. 03/2013)

Highway and Freeway encasement requirements for Transverse crossings of Utility installations, installed by the following methods. The pavement or roadway shall not be open-cut unless specifically allowed under a "UT" permit. Utility installations shall not be installed inside of culverts or drainage structures.

The installation of Uncased High Pressure Natural Gas pipelines, on a case by case basis may be allowed, when in compliance with TR-0158 Special Provisions, "Exception to Policy" for Uncased High Pressure Natural Gas Pipelines.

Encasement Requirements based on: Installation Method, Type of Highway Facility and Material Transported in carrier.						
Facility Type	Bore and Jack		Directional Drilling		Trenching	
	Frwy/Expwy	Conventional	Frwy/Expwy	Conventional	Frwy/Expwy	Conventional
High Risk (Section 605)	Encase	Encase	Encase	Encase	Encase	Encase
Low Risk (Section 605)	Encase	Encase	Encase	Encase	Encase	Encase*
Exempt Facilities (Section 605)	Encase	Encase	Encase*	Encase*	Encase*	Encase*
Pressurized Fluids	Encase	Encase	Encase	Encase	Encase	Encase
Natural Gas Lines Minimum 7.5' Depth (Appendix H)	Encase*	Encase*	Encase*	Encase*	Encase*	Encase*
Gravity Flows	Encase	Encase	Encase	Encase	Encase*	Encase*

*NOTE: The District Permit Engineer may waive at his/her discretion the encasement requirement when warranted.

UG 1. CASINGS:

Casings should be steel conduit with a minimum inside diameter sufficiently larger than the outside diameter of the pipe or ducts to accommodate placement and removal. The casing can be either new or used steel pipe, or an approved connector system. Used pipe shall be pre-approved by the Department's engineer or representative before installation.

When the method of Horizontal Directional Drilling is used to place casing, the use of High Density Polyethylene Pipe (HDPE) as casing is acceptable. In specific instances the approval of Headquarters Office of Encroachment Permits, may be required.

Reinforced Concrete Pipe (RCP) in compliance of State Standard Specifications is an acceptable carrier for storm drain gravity flow or non-pressure flow. RCP when installed by Bore & Jack shall have rubber gaskets at the joints, and holes for grouting of voids left by jacking operations, see "E" below.

- A. All pipes 6" or larger in diameter, or placement of multiple pipes or ducts, regardless of diameters, shall require encasement.
- B. Minimum wall thickness for steel pipe casing for different lengths and diameters of pipes are as follows:

Minimum Wall Thickness		
Casing Pipe (Diameter)	Up to 150 ft (Length)	Over 150 ft (Length)
6" to 28"	1/4"	1/4"
30" to 38"	3/8"	1/2"
40" to 60"	1/2"	3/4"
62" to 72"	3/4"	3/4"

- C. Spiral welded casing is authorized provided the casing is new and the weld is smooth.

- D. The ends of the casing shall be plugged with ungrouted bricks or other suitable material approved by the Department's representative.
- E. When required by the Department's representative, the permittee shall at his expense, pressure grout the area between the pavement and the casing from within the casing in order to fill any voids caused by the work covered under this permit. The increments for grout holes inside the pipe shall be 8' staggered and located 22-1/2 degrees from vertical axis of the casing. Pressure shall not exceed 5 psig for a duration sufficient to fill all voids.
- F. There is a spacing requirement when placement of multiple encasements is requested. The distance between multiple encasements shall be the greater of either 24" or twice that of the diameter of the larger pipe being installed.
- G. The casings placed within freeway right-of-way shall extend to the access control lines.
- H. Wing cutters, if used, shall be a maximum of 1" larger than the casing. Voids caused by the use of wing cutters shall be grouted in accordance with "E" above.
- I. A band welded to the leading edge of the casing should be placed square to the alignment. The band should not be placed on the bottom edge. Flaring the lead section on bores over 100' shall not be permitted.
- J. All casing lengths shall equal to the auger length.
- K. The casings within conventional highways shall extend 5' beyond the back of curb or edge of pavement, or to the right of way line if less. Where PCC cross-gutter exists, the casing shall extend at least 5' beyond the back of the cross-gutter, or to the right of way line if less.

Bore and receiving pits shall be:

- A. Located at least 10' or more from the edge of pavement on conventional highways in rural areas.
- B. Located 5' behind the concrete curb or AC dike on conventional highways in urban areas.
- C. Located 5' outside the toe of slope of embankment areas.

- D. Located outside freeway right of way.
- E. Adequately fenced and/or have a Type-K barrier placed around them.
- F. Adequately shored in accordance with Cal-OSHA requirements. Shoring for jacking and receiving pits located within 15' of traffic lanes on a State highway shall not extend more than 36" above the pavement grade unless otherwise authorized by Department's representative. Reflectors shall be affixed to the shoring on the sides facing traffic. A 6' chain link fence shall be installed around the perimeter of the pits during non-working hours.
- G. All pits should have crushed-rock and sump areas to clear groundwater and water used to clean the casing. Where ground water is found and pumping is required, the pits shall be lined with filter fabric.

**UG 2. DIRECTIONAL DRILLING:
Bore and Receiving Pits**

When directional drilling is the approved method for pipe installation, drilling plans shall contain information listed as follows:

1. Location of: entry and exit point, access pit, equipment, and pipe staging area.
2. Proposed drill path alignment (horizontal and vertical).
3. Location and clearances of all other facilities.
4. Depth of cover.
5. Soil analysis.*
6. Carrier pipe length, diameter, thickness, and material (HDPE/steel) and ream pipe diameter.
7. Detailed carrier pipe calculations confirming ability to withstand installation loads and long term operational loads including H2O.
8. Proposed drilling fluid composition, viscosity, and density (based on soils analysis).
9. Drilling fluid pumping capacity, pressures, and flow rates
10. State right-of-way lines, property, and utility right of way or easement lines.
11. Elevations.
12. Type of tracking method/system and accuracy used.
13. A detailed plan for monitoring ground surface movement (settlement or heave) resulting from the drilling operation.

* May be waived by the District Permit Engineer for HDD jobs less than 6" in diameter and a traverse crossing less than 150'.

UG 3. LIMIT OF EXCAVATION:

No excavation is allowed within 10' from the edge of pavement except in curbed urban areas or as specified in the permit. Where no curb exists and excavations within 10' of the traveled way are to remain open, a temporary Type-K railing shall be placed at a 20:1 taper or as otherwise directed by the Department.

UG 4. TUNNELING:

Review, requirements of Section 623.6 of the Encroachment Permits Manual, if applicable. In addition to the requirements of "UG1" the following requirements apply:

- A. For the purpose of this provision, a tunnel is defined as any pipe, 30" or larger in diameter placed.
- B. When tunneling is authorized, the permittee shall provide full-time inspection of tunneling operations. The Department's representative shall monitor projects.

- C. A survey grid shall be set and appropriately checked over the centerline of the pipe jacking or tunneling operation. Copies of the survey notes shall be submitted to the Department's representative.
- D. Sand shields may be required as ground conditions change.
- E. The method used to check the grade and alignment shall be approved by the Department's representative.
- F. Pressure grouting for liner plates, rib and spiling, or rib and lagging tunnels shall be at every 8' section or at the end of work shift before the next section is excavated. All grouting shall be completed at the end of each workday.
- G. A method for securing the headway at the end of each workday is required. Breastplates shall be installed during working hours for running sand or super-saturated soil.

UG 5. HIGH AND LOW RISK FACILITIES:

High and Low Risk Facilities, as defined in the Department's current Manual on High and Low Risk Underground Facilities, shall be installed with a minimum cover of 42".

UG 6. EXEMPT AND OTHER UNDERGROUND FACILITIES:

A. Exempt Facilities:

1. Gas service lines no larger than 2" in diameter or operating at 60 psig or less.
2. Underground electrical service conductors with a potential to ground of 300 volts or less.
3. Departmental owned electrical systems.

B. All facilities other than high and low risk shall have a minimum cover of 36" except for service connections, which shall have a minimum cover of 30".

UG 7. DETECTOR STRIP:

A continuous metallic detector strip shall be provided with non-metallic main installations. Service connections shall be installed at right angles to the centerline of the State highway where possible.

UG 8. BACKFILLING:

All backfilling shall conform to the applicable sections of the Department's Standard Specifications. Ponding or jetting methods of backfilling is prohibited.

Any required compaction tests shall be performed by a certified laboratory at no cost to the Department and the laboratory report furnished to the Department's representative.

UG 9. ROADWAY SURFACING AND BASE MATERIALS:

When the permit authorizes installation by the open cut method, surfacing and base materials and thickness thereof shall be as specified in the permit.

Temporary repairs to pavements shall be made and maintained upon completion of backfill until permanent repairs are made. Permanent repairs to pavements shall be made within thirty (30) days of completion of backfill unless otherwise specified by the Department. Temporary pavement patches shall be placed and maintained in a smooth riding plane free of humps and/or depressions.

UG 10. DAMAGE TO TREE ROOTS:

No tree roots over 3" will be cut within the tree drip line when trenching or other underground work is necessary adjacent to roadside trees. The roots that are 3" or more in diameter inside the tree drip line shall be tunneled under and wrapped in burlap and kept moist until the trench is refilled. Trenching machines may not be used under trees if the trunk or limbs will be damaged by their use.

If the trees involved are close together and of such size that it is impractical to protect all roots over 3" in diameter, or when roots are less than 4" in diameter, outside tree drip line, special arrangements may be made whereby pruning of the tree tops to balance the root loss can be done by the permittee under the close supervision of the District Landscape Specialist or District Tree Maintenance Supervisor. Manholes shall not be installed within 20' of any trunk.

UG 11. PIPES ALONG ROADWAY:

Pipes and conduits paralleling the pavement shall be located as shown on the plans or located outside of pavement as close as possible to the right-of-way line.

UG 12. BORROW AND WASTE:

Borrow and waste will be allowed within the work limits only as specified in the permit.

UG 13. MARKERS:

The permittee shall not place any markers that create a safety hazard for the traveling public or departmental employees.

UG 14. CATHODIC PROTECTION:

The permittee shall perform stray current interference tests on underground utilities under cathodic protection. The permittee shall notify the Department prior to the tests. The permittee shall perform any necessary corrective measures and advise the Department.

UG 15. TIE-BACKS:

- A. Tie-backs shall be placed for the sole purpose of supporting shoring and/or soldier piles placed outside State highway rights-of-way to facilitate permittee's excavation.
- B. Tiebacks shall be disconnected from the shoring and/or soldier piles one (1) year prior to releasing the bond.

UG 16. INSTALLATION BY OPEN CUT METHOD:

When the permit authorizes installation by the open cut method no more than one lane of the highway pavement shall be open-cut at any one time. Any exceptions shall be in writing by the Department's representative. After the pipe is placed in the open section, the trench is to be backfilled in accordance with specifications, temporary repairs made to the surfacing and that portion opened to traffic before the pavement is cut for the next section.

If, at the end of the working day, backfilling operations have not been properly completed, steel plate bridging shall be required to make the entire highway facility available to the traveling public in accordance with the Steel Plate Bridging Special Provisions (TR-0157)

UG 17. PAVEMENT REMOVAL:

PCC pavement to be removed shall be saw cut at a minimum depth of 4" to provide a neat and straight pavement break along both sides of the trench. AC pavement shall be saw cut to the full depth.

Where the edge of the trench is within 2' of existing curb and gutter or pavement edge, the asphalt concrete pavement between the trench and the curb or pavement edge shall be removed.

UG 18. MAINTAIN ACCESS:

Where facilities exist (sidewalks, bike paths), a minimum width of 4' shall be maintained at all times for safe pedestrian and bicyclist passage through the work area.

UG 19. SIDES OF OPEN-CUT TRENCHES:

Sides of open cut trenches in paved areas shall be kept as nearly vertical as possible. Trenches shall not be more the 2' wider than the outside diameter of the pipe to be laid therein, plus the necessary width to accommodate shoring.

UG 20. EXCAVATION UNDER FACILITIES:

Where it is necessary to excavate under existing curb and gutter, or underground facilities, the void shall be backfilled with two (2) sack cement-sand slurry.

UG 21. PERMANENT REPAIRS TO PCC PAVEMENT:

Repairs to PCC pavement shall be made of Portland Cement Concrete containing a minimum of 658 lbs. or 7 sack of cement per cubic yard. Replaced PCC pavement shall equal existing pavement thickness. The concrete shall be satisfactorily cured and protected from disturbance for not less than forty-eight (48) hours. Where necessary to open the area to traffic, no more than two (2%) percent by weight of calcium chloride may be added to the mix and the road opened to traffic after six (6) hours.

UG 22. REMOVAL OF PCC SIDEWALKS OR CURBS:

Concrete sidewalks or curbs shall be saw cut to the nearest score marks and replaced equal in dimension to that removed with score marks matching existing sidewalk or curb.

UG 23. SPOILS:

No earth or construction materials shall be dragged or scraped across the highway pavement, and no excavated earth shall be placed or allowed to remain at a location where it may be tracked on the highway traveled way, or any public or private approach by the permittee's construction equipment, or by traffic entering or leaving the highway traveled way. Any excavated earth or mud so tracked onto the highway pavement or public or private approach shall be immediately removed by the permittee.

**Chart No. 1
Road Lane Requirement Hours**

County: SD	Route/Direction: SB 30th St														PM:										
Closure Limits: At Rte 94																									
FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays									1	1	1	1	1	1	1	1									
Fridays									1	1	1	1	1	1	1	1									
Saturdays																									
Sundays																									
Legend:																									
<input type="checkbox"/> 1 Provide at least one through traffic lane open in direction of travel																									
<input type="checkbox"/> Work permitted within project right of way where shoulder or lane closure is not required.																									
REMARKS: This chart to be used when SB direction is open.																									

PN - 1116NUB0163 - (1/2) - 03-18-2016 (AVO)



**Chart No. 2
Road Lane Requirement Hours**

County: SD	Route/Direction: NB 30th St														PM:										
Closure Limits: At Rte 94																									
FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays								1	1	1	1	1	1	1	1										
Fridays								1	1	1	1	1	1	1	1										
Saturdays																									
Sundays																									
Legend:																									
<input type="checkbox"/> 1 Provide at least one through traffic lane open in direction of travel <input type="checkbox"/> Work permitted within project right of way where shoulder or lane closure is not required.																									
REMARKS: This chart to be used when NB direction is open.																									

PN - 1116NUB0163 - (22) - 03-18-2016 (AVO)



SHEET INDEX

SHEET NO.	DISCIPLINE CODE	TITLE	LIMITS	PIPE		LENGTH (FT)
				SIZE (IN)	MATERIAL	
1	G-1	COVER SHEET				
2	G-2	SHEET INDEX				
3	G-3	KEY MAP 1				
4	G-4	KEY MAP 2				
WATER						
5	C-1	30TH STREET	POLK AVE TO LINCOLN AVE	36/30/16	CML&TW	400/53.54/25
6	C-2	30TH STREET	LINCOLN AVE TO UNIVERSITY AVE	36	CML&TW	800
7	C-3	30TH STREET	UNIVERSITY AVE TO NORTH PARK WAY	36	CML&TW	700
8	C-4	30TH STREET	NORTH PARK WAY TO LANDIS ST	36	CML&TW	800
9	C-5	30TH STREET	LANDIS ST TO CAPP'S ST	36/12	CML&TW/PVC	700/27
10	C-6	30TH STREET	CAPP'S ST TO UPAS ST	36	CML&TW	654.86
11	C-7	30TH STREET	UPAS ST TO THORN ST	42/16	CML&TW/PVC	668.77/91.67
12	C-8	30TH STREET	THORN ST TO REDWOOD ST	16/8	PVC	700/40
13	C-9	30TH STREET	REDWOOD ST TO PALM ST	16/8	PVC	700/117
14	C-10	30TH STREET	PALM ST TO MAPLE ST	16/8	PVC	700/19
15	C-11	30TH STREET	MAPLE ST TO LAUREL ST	16/8	PVC	700/111
16	C-12	30TH STREET/ FERN STREET	LAUREL ST TO JUNIPER ST	16/8	PVC	700/51
17	C-13	FERN STREET	JUNIPER ST TO HAWTHORN ST	16/8	PVC	800/28
18	C-14	FERN STREET	HAWTHORN ST TO FIR ST	16/8	PVC	600/42
19	C-15	FERN STREET	FIR ST TO ELM ST	16/8	PVC	617.94/76
20	C-16	FERN STREET	ELM ST TO CEDAR ST	16	PVC	600
21	C-17	FERN STREET	CEDAR ST TO ASH ST	16/8	PVC	700/35
22	C-18	FERN STREET/ 30TH STREET	ASH ST TO A ST	16/8	PVC	750/32
23	C-19	30TH STREET	A ST TO C ST	16	PVC	600
24	C-20	30TH STREET	C ST TO BROADWAY	30/24/16/12	CML&TW/CML&TW/ PVC/PVC	21/54.99/587.01/42
25	C-21	30TH STREET	BROADWAY TO E ST	16/8	CML&EC/PVC/PVC	100/500/133
26	C-22	30TH STREET	E ST TO G ST	16	CML&EC/PVC	232/268
27	C-23	30TH STREET	G ST TO ISLAND AVE	16/12	PVC	600/92
28	C-24	30TH STREET	ISLAND AVE TO K ST	16/12/8	PVC	700/40/84
29	C-25	30TH STREET/K STREET	K ST	16/12	PVC	500/57
30	C-26	30TH STREET	K ST TO IMPERIAL ST	16/8	PVC	700/26
31	C-27	30TH STREET	IMPERIAL ST TO COMMERCIAL ST	16	PVC	542.91
32	C-28	30TH STREET	POLK AVE TO LINCOLN AVE	16/12	PVC	43.15/400
33	C-29	30TH STREET	LINCOLN AVE TO UNIVERSITY AVE	12	PVC	800
34	C-30	30TH STREET	UNIVERSITY AVE TO NORTH PARK WAY	12	PVC	700
35	C-31	30TH STREET	NORTH PARK WAY TO LANDIS ST	12	PVC	800
36	C-32	30TH STREET	LANDIS ST TO CAPP'S ST	12	PVC	753
37	C-33	30TH STREET	CAPP'S ST TO UPAS ST	12	PVC	649.05
38	C-34	30TH STREET	UPAS ST TO THORN ST	12/8	PVC	672.42/20
39	C-35	UNIVERSITY AVENUE	30TH ST TO RAY ST	12/8	PVC	365.24/45
40	C-36	G STREET	30TH ST TO 30TH PLACE	12	PVC	226.70
		30TH PLACE	G STREET TO ALLEY	12	PVC	228.04
41	C-37	UPAS STREET	30TH ST TO RAY ST	36/24/16	CML&TW/ CML&TW/PVC	263.68/27/25.98
42	C-38	UPAS STREET	DALE ST TO RAY ST	12	PVC	305.42
43	C-39	JUNIPER STREET	30TH ST TO FERN ST	12	PVC	83.45
		A STREET	30TH ST TO FERN ST	8	PVC	84.67
44	C-40	COMMERCIAL STREET	30TH ST	12	PVC	130
		DWIGHT STREET	RAY ST	12	PVC	40
45	C-41	THORN STREET	28TH ST TO 29TH ST	42	CML&TW	595
46	C-42	THORN STREET	29TH ST TO 30TH ST	42/36	CML&TW	738.70/52
47	C-43	MTS NOTES			TOTAL WATER	26,968.19
48	C-44	DETAILS I				

SHEET NO.	DISCIPLINE CODE	TITLE	LIMITS
52-54	C-48 TO C-50	WORK BY CITY FORCES I TO 3	
55-57	C-51 TO C-53	FIRE DEPT INFORMATION I TO 3	
58-60	C-54 TO C-56	STREET RESURFACING I TO 3	
61-63	C-57 TO C-59	CURB RAMP LOCATION I TO 3	
64-68	C-60 TO C-64	CURB RAMP DETAILS I TO 5	
69-71	C-65 TO C-67	MONUMENT PERPETUATION I TO 3	
72-73	C-68 TO C-69	TRENCHLESS DETAILS	
74-79	CP-1 TO CP-6	CATHODIC PROTECTION DETAILS	
80	S-1	30TH STREET	GENERAL PLAN
81	S-2	30TH STREET	TYPICAL SECTION AND INDEX TO PLANS
82	S-3	30TH STREET	FOUNDATION PLAN
83	S-4	30TH STREET	WATERLINE VAULT DETAILS NO. 1
84	S-5	30TH STREET	WATERLINE VAULT AT ABUTMENT 1 DETAILS NO. 2
85	S-6	30TH STREET	WATERLINE VAULT AT ABUTMENT 5 DETAILS NO. 3
86	M-1	30TH STREET	30TH STREET BRIDGE WATERLINE VAULT DETAILS 1
87	M-2	30TH STREET	30TH STREET BRIDGE WATERLINE VAULT DETAILS 2
88	M-3	28TH & THORN STREET	PRS PLAN
89	M-4	28TH & THORN STREET	PRS SECTIONS
90	M-5	28TH & THORN STREET	DETAILS 1
91	M-6	28TH & THORN STREET	DETAILS 2
92	E-1	28TH & THORN STREET	ELECTRICAL STANDARD SYMBOLS AND ABBREVIATIONS
93	E-2	28TH & THORN STREET	ELECTRICAL SITE PLAN AND SINGLE LINE DIAGRAM
94	E-3	28TH & THORN STREET	PRESSURE REDUCING STATION POWER AND SIGNAL PLAN
95	E-4	28TH & THORN STREET	CONDUIT SCHEDULE
96	E-5	28TH & THORN STREET	ELECTRICAL DETAILS
97	E-6	28TH & THORN STREET	RCP CONTROL DIAGRAM 1
98	E-7	28TH & THORN STREET	RCP CONTROL DIAGRAM 2
99	E-8	28TH & THORN STREET	RCP CONTROL DIAGRAM 3
100	E-9	28TH & THORN STREET	RCP CONTROL DIAGRAM 4
101	E-10	28TH & THORN STREET	RCP CONTROL DIAGRAM 5
102	E-11	28TH & THORN STREET	RCP CONTROL LAYOUT DIAGRAM
103	E-12	30TH STREET	VAULT AT ABUTMENT 1 ELECTRICAL SITE PLAN
104	E-13	30TH STREET	VAULT AT ABUTMENT 5 ELECTRICAL SITE PLAN
105	E-14	30TH STREET	POWER PLAN AT ABUTMENTS 1 AND 5
106	M-7	POLK AVENUE	TRANSMISSION MAIN CONNECTION DETAILS
107	M-8	UPAS STREET AND BROADWAY	TRANSMISSION MAIN CONNECTION DETAILS
108	C-70	DETAILS 2	
	T-1 TO T-62	TRAFFIC CONTROL PLANS	

DISCIPLINE CODE

- C CIVIL
- CP CATHODIC PROTECTION
- E ELECTRICAL
- G GENERAL
- M MECHANICAL
- S STRUCTURAL
- T TRAFFIC CONTROL

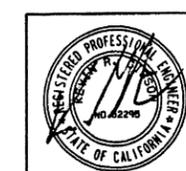
PERMIT NUMBER CO SD RTE 94 PM 2.5
 AS-BUILT PLANS FOR ROADWAY
 GEOMETRIC AND ABOVE GROUND
 FEATURES
 STATE REPRESENTATIVE _____ DATE _____

APPROVED ENCROACHMENT PERMIT
 1116 NUBO/63
 MAR 23 2017

RECEIVED
 MAR 17 2017
 CALTRANS-PERMIT

SHEET INDEX

RICK ENGINEERING COMPANY
 5620 FRIARS ROAD
 SAN DIEGO, CA 92110
 619-291-0707
 (FAX) 619-291-4165
 rickengineering.com
 Riverside - Orange - Sacramento - San Luis Obispo - Phoenix - Tucson - Denver



G-2

PLANS FOR THE CONSTRUCTION OF
 30TH STREET PIPELINE REPLACEMENT
 SHEET INDEX

CITY OF SAN DIEGO, CALIFORNIA
 PUBLIC WORKS DEPARTMENT
 SHEET 2 OF 108 SHEETS

WATER W.O. S-12010
 SEWER W.O. -

FOR CITY ENGINEER: SHEILA BOSE
 PRINT NAME: SHEILA BOSE
 DATE: _____

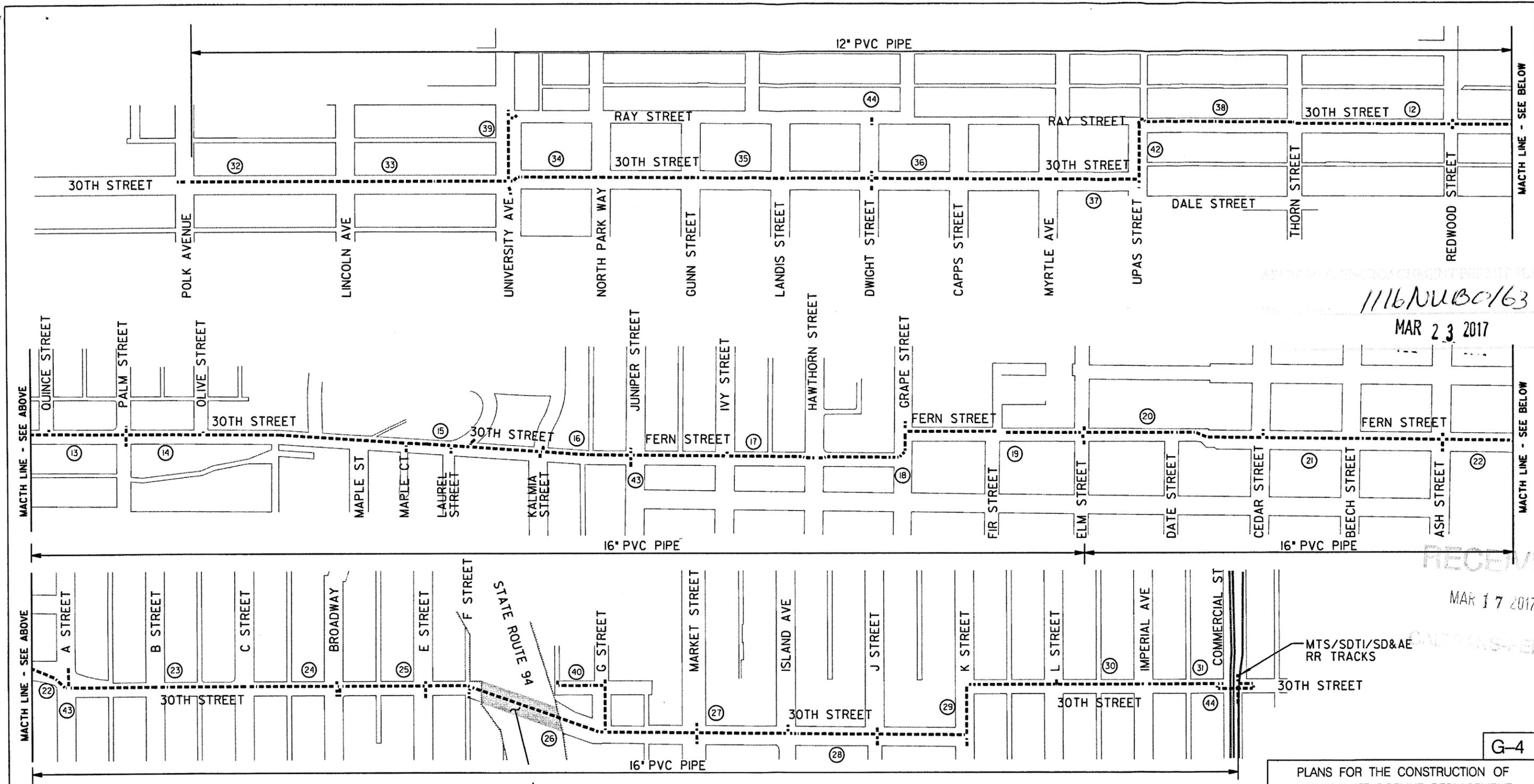
PROJECTED BY: JONG CHOI
 PROJECT MANAGER: JONG CHOI

DESIGNED BY: JENNY JARRELL
 PROJECT ENGINEER: JENNY JARRELL

DESCRIPTION	BY	APPROVED	DATE	FILED
ORIGINAL	REC			

CONTRACTOR: _____ DATE STARTED: _____
 INSPECTOR: _____ DATE COMPLETED: _____

38145-02-D



1116NUB0163
MAR 23 2017

RECEIVED
MAR 17 2017

KEY MAP 2

LEGEND

PROP WATER MAIN -----
PROP WATER MAIN SHEET (XX)

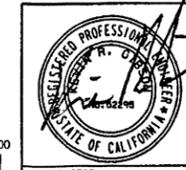
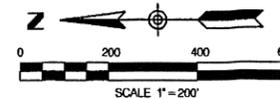
PERMIT NUMBER _____
CO SD RTE 94 PM 2.5
AS-BUILT PLANS FOR ROADWAY
GEOMETRIC AND ABOVE GROUND
FEATURES
STATE REPRESENTATIVE _____ DATE _____

CALTRANS 30TH STREET
OVERCROSSING WORK

KEY MAP

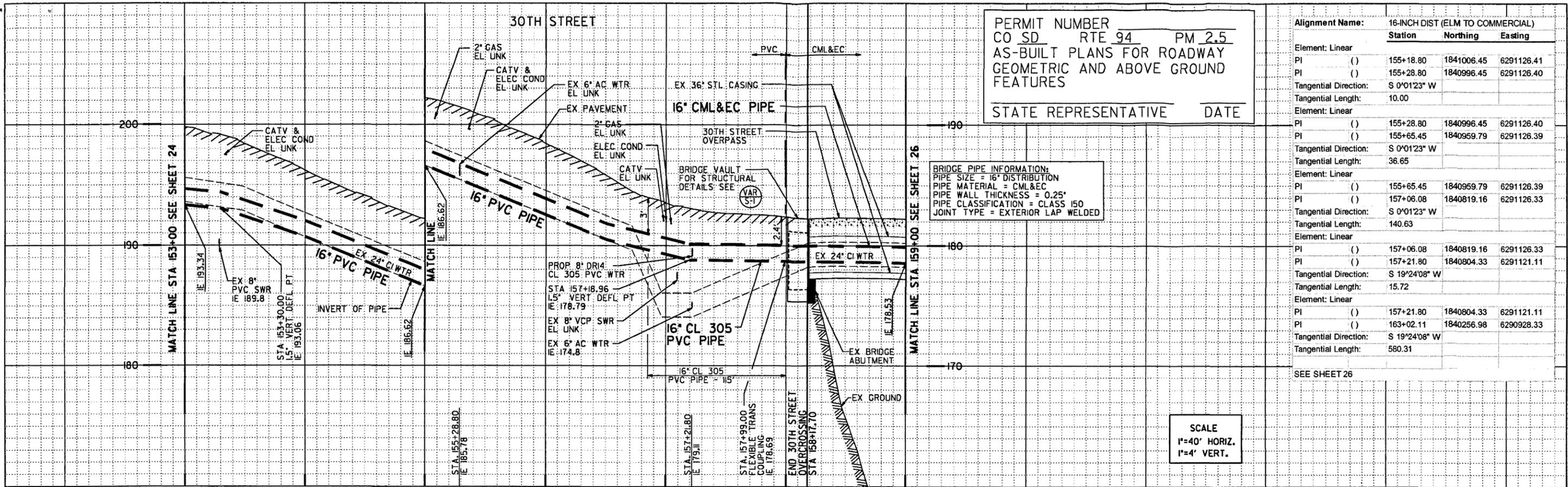
30TH STREET DISTRIBUTION MAINS

NO SCALE



PLANS FOR THE CONSTRUCTION OF 30TH STREET PIPELINE REPLACEMENT KEY MAP 2												
CITY OF SAN DIEGO, CALIFORNIA PUBLIC WORKS DEPARTMENT SHEET 4 OF 108 SHEETS		WATER W.O. S-12010 SEWER W.O. _____										
FOR CITY ENGINEER SHEILA BOSE PRINT NAME _____ RCE# _____	DATE _____ PROJECT MANAGER JONG CHOI	CHECKED BY JENNY JARRELL PROJECT ENGINEER										
<table border="1"> <thead> <tr> <th>DESCRIPTION</th> <th>BY</th> <th>APPROVED</th> <th>DATE</th> <th>FILED</th> </tr> </thead> <tbody> <tr> <td>ORIGINAL</td> <td>REC</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	DESCRIPTION	BY	APPROVED	DATE	FILED	ORIGINAL	REC				SEE SHEETS CC527 COORDINATE SEE SHEETS CC583 COORDINATE	CONTRACTOR INSPECTOR _____ DATE STARTED _____ DATE COMPLETED _____
DESCRIPTION	BY	APPROVED	DATE	FILED								
ORIGINAL	REC											
		38145-04 -D										

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PERMIT NUMBER
 CO SD RTE 94 PM 2.5
 AS-BUILT PLANS FOR ROADWAY
 GEOMETRIC AND ABOVE GROUND
 FEATURES

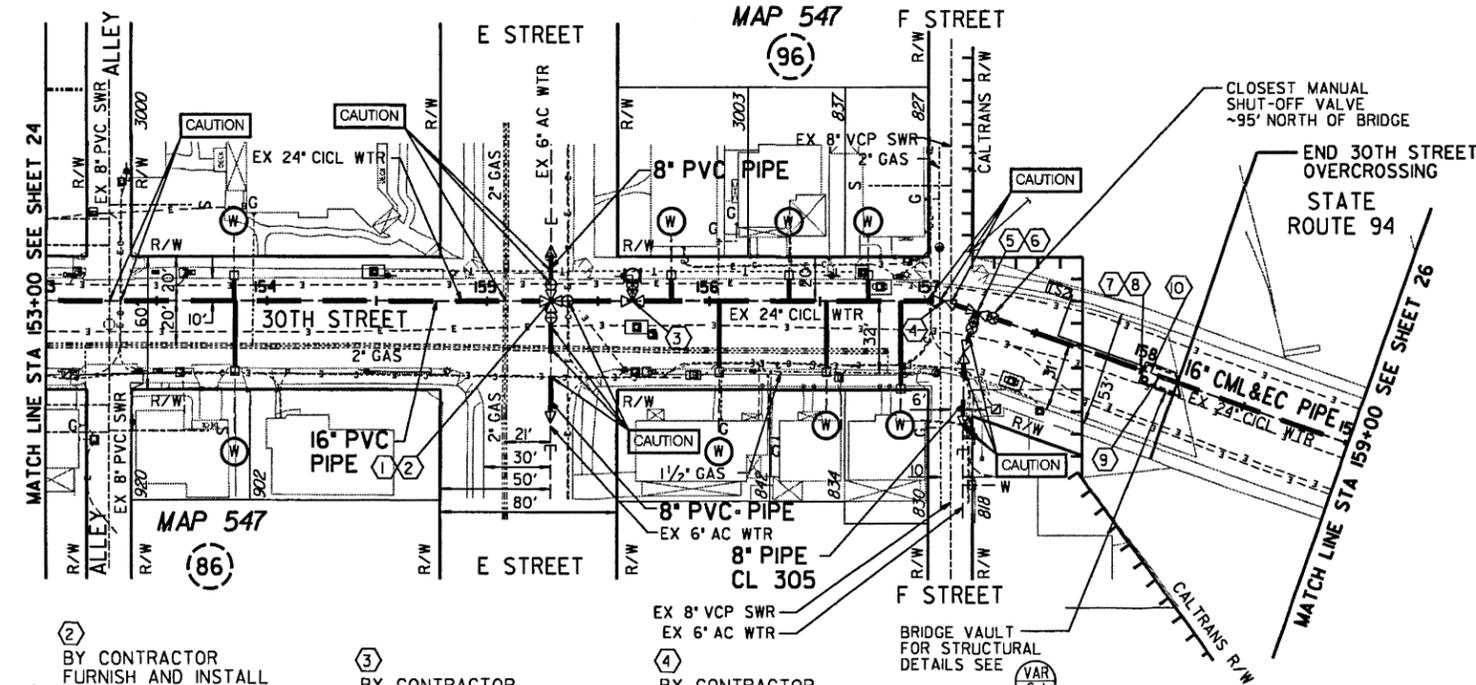
STATE REPRESENTATIVE _____ DATE _____

BRIDGE PIPE INFORMATION:
 PIPE SIZE = 16" DISTRIBUTION
 PIPE MATERIAL = CML&EC
 PIPE WALL THICKNESS = 0.25"
 PIPE CLASSIFICATION = CLASS 150
 JOINT TYPE = EXTERIOR LAP WELDED

Alignment Name: 16-INCH DIST (ELM TO COMMERCIAL)			
Station	Northing	Easting	
Element: Linear			
PI ()	155+18.80	1841006.45	6291126.41
PI ()	155+28.80	1840996.45	6291126.40
Tangential Direction: S 0°01'23" W			
Tangential Length: 10.00			
Element: Linear			
PI ()	155+28.80	1840996.45	6291126.40
PI ()	155+65.45	1840959.79	6291126.39
Tangential Direction: S 0°01'23" W			
Tangential Length: 36.65			
Element: Linear			
PI ()	155+65.45	1840959.79	6291126.39
PI ()	157+06.08	1840819.16	6291126.33
Tangential Direction: S 0°01'23" W			
Tangential Length: 140.63			
Element: Linear			
PI ()	157+06.08	1840819.16	6291126.33
PI ()	157+21.80	1840804.33	6291121.11
Tangential Direction: S 19°24'08" W			
Tangential Length: 15.72			
Element: Linear			
PI ()	157+21.80	1840804.33	6291121.11
PI ()	163+02.11	1840256.98	6290928.33
Tangential Direction: S 19°24'08" W			
Tangential Length: 580.31			

SCALE
 1"=40' HORIZ.
 1"=4' VERT.

153+00 154+00 155+00 156+00 157+00 158+00 159+00



⑥ BY CONTRACTOR FURNISH AND INSTALL
 STA 157+21.80
 1-16"x8" TEE (MJ, F, F)
 1-16" BFV (F, MJ) AND
 1-8" GV (F, MJ) RT
 1-8" 22.5" BEND (MJ), 19' RT
 1-8"x6" REDUCER (MJ), 53' RT
 53'-8" PIPE, RT
 SEE DETAIL (1) (C-44)

⑨ BY CONTRACTOR FURNISH AND INSTALL
 STA 158+09.20
 1-16" DOUBLE BALL EXPANSION JOINT (F, F)
 SEE DETAIL (A) (M-1)

⑦ BY CONTRACTOR FURNISH AND INSTALL
 STA 157+99.00
 1-16" FLEXIBLE COUPLING
 SEE DETAIL (2) (C-44)

⑩ BY CONTRACTOR FURNISH AND INSTALL
 STA 158+04.64
 ABOVE GRADE FLANGE ISOLATION KIT
 SEE DETAIL (4) (CP-4)

⑧ BY CONTRACTOR FURNISH AND INSTALL
 STA 158+00.00
 2-WIRE TEST STATION W/ 2 ANODES. TEST LEADS ATTACHED TO METALLIC PIPELINE OUTSIDE OF BRIDGE VAULT. INSTALL TEST BOX AND ANODES OUTSIDE OF CALTRANS R/W. SEE DETAIL (4) (CP-3)

① BY CITY FORCES AHD OF CONTRACTOR
 STA 155+28.80
 TEMP. CUT & PLUG:
 EX 6" WTR, 35' LT, 65' RT
 RECONNECT AFTER NEW MAIN HAS BEEN ACCEPTED

② BY CONTRACTOR FURNISH AND INSTALL
 STA 155+28.80
 1-16"x8" CROSS (MJ, F, F, F)
 1-8" BFV (F, MJ) AHD
 1-8" GV (F, MJ) LT, RT
 1-8"x6" REDUCER (MJ), 25' LT
 1-8"x6" REDUCER (MJ), 55' RT
 25'-8" PIPE, LT
 55'-8" PIPE, RT

③ BY CONTRACTOR FURNISH AND INSTALL
 STA 155+65.45
 1-16"x6" TEE (MJ, MJ, F)
 1-6" FH ASSY AND MARKER (2-PORT)

④ BY CONTRACTOR FURNISH AND INSTALL
 STA 157+06.08
 1-16" 22.5" BEND (MJ)

⑤ BY CITY FORCES AHD OF CONTRACTOR
 STA 157+21.80
 TEMP. CUT & PLUG:
 EX 6" WTR, 63' RT
 RECONNECT AFTER NEW MAIN HAS BEEN ACCEPTED

NOTE:
 CONTRACTOR TO INSTALL DOUBLE BALL EXPANSION JOINTS AND FLEXIBLE COUPLINGS PER THE REQUIREMENTS OF THE MANUFACTURER.

NOTE:
 CONTRACTOR TO POTHOLE EXISTING CONDUITS WITHIN CALTRANS RIGHT OF WAY FOR EXACT LOCATIONS & DEPTH THAT ARE IN CONFLICT WITH THE PROPOSED WORK. CONDUITS ARE TO BE PROTECTED IN PLACE.

CONTRACTOR'S NOTE:
 USE EXTREME CAUTION WHEN WORKING DUE TO LOW OVERHEAD UTILITY LINES.

REFERENCE:
 WATER: 23-L, 9008-L, 10803-L, 21732-4-D
 SEWER: 27679-14-D
 STORM DRAIN: NONE
 GAS: CO*2927640
 ELECTRIC: CO*2927640
 CABLE TV: 123-728, BMAI988
 TELEPHONE: BMAI989
 IMPROVEMENTS: NONE
 100' SCALE/FIELD BOOK: H225
 THOMAS BROS.: 1289-E3
 HGL: 390 (DISTRIBUTION)

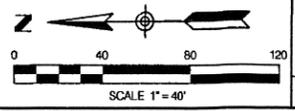
RETIREMENTS:
 6" - AC - 100.00' - 1961
 24" - CI - 600.00' - 1913
 FH (2-PORT) - 1
 3/4" SERVICE - 7 - COPPER - 1913
 1" SERVICE - 1 - COPPER - 1913

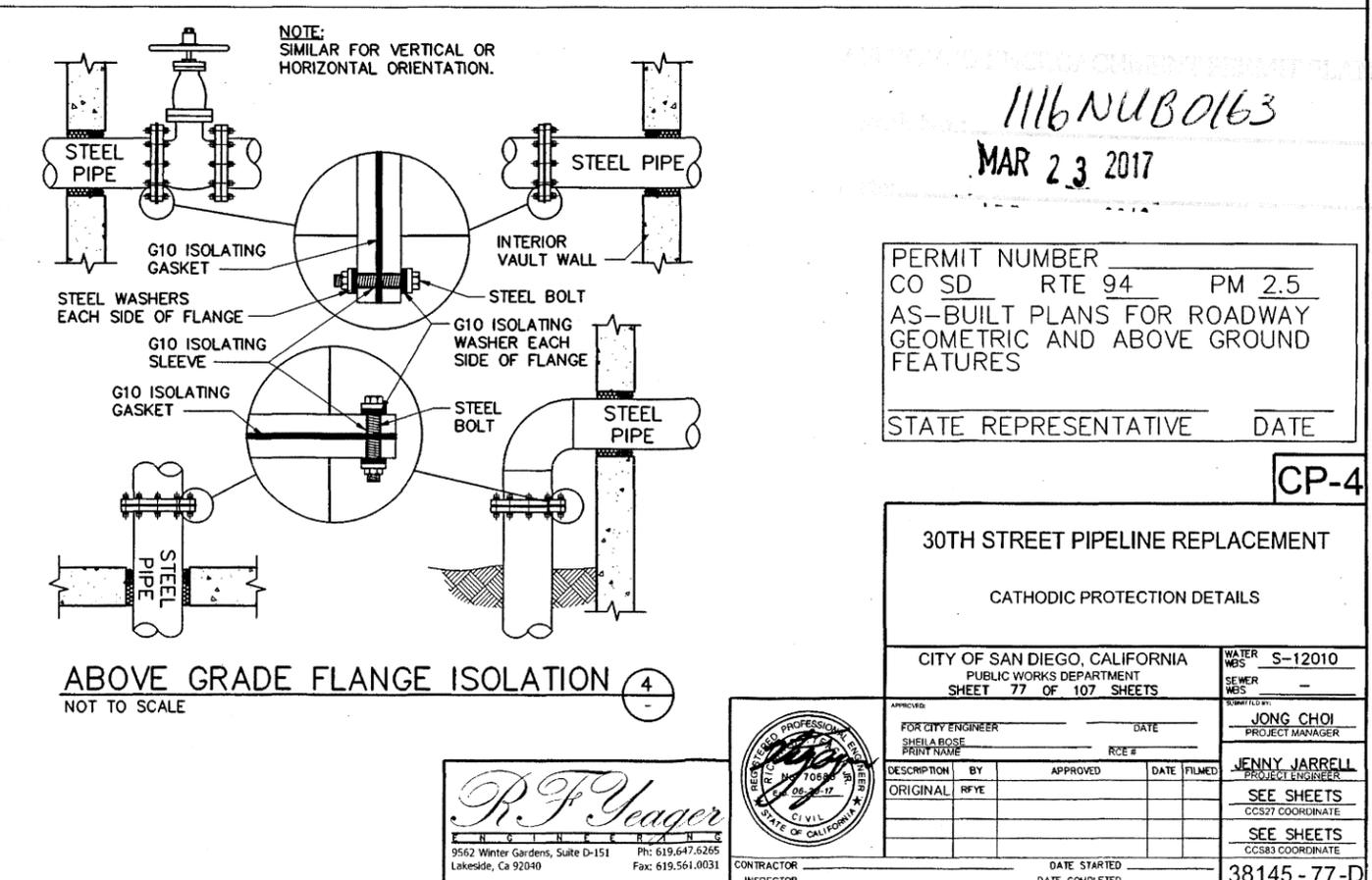
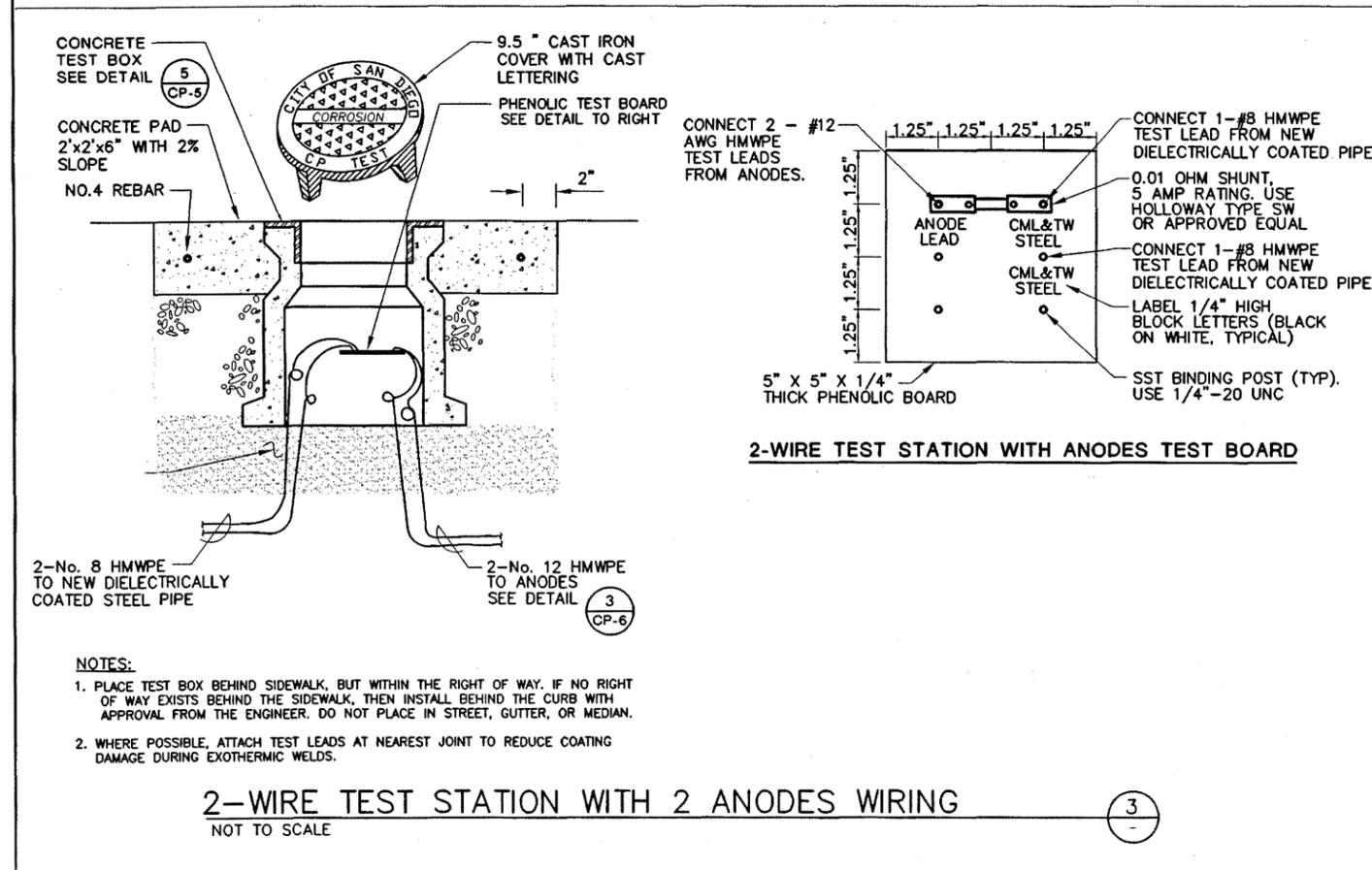
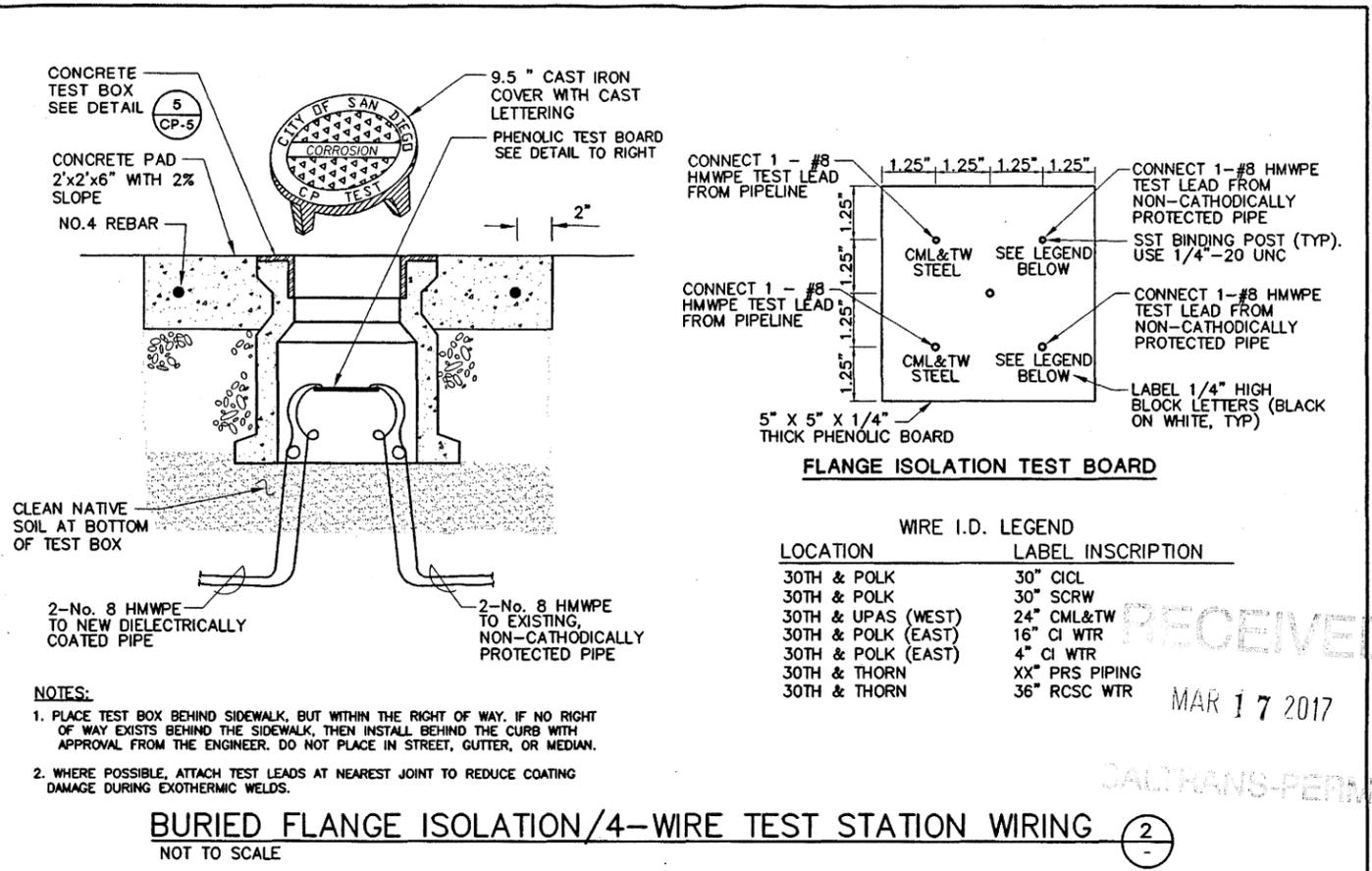
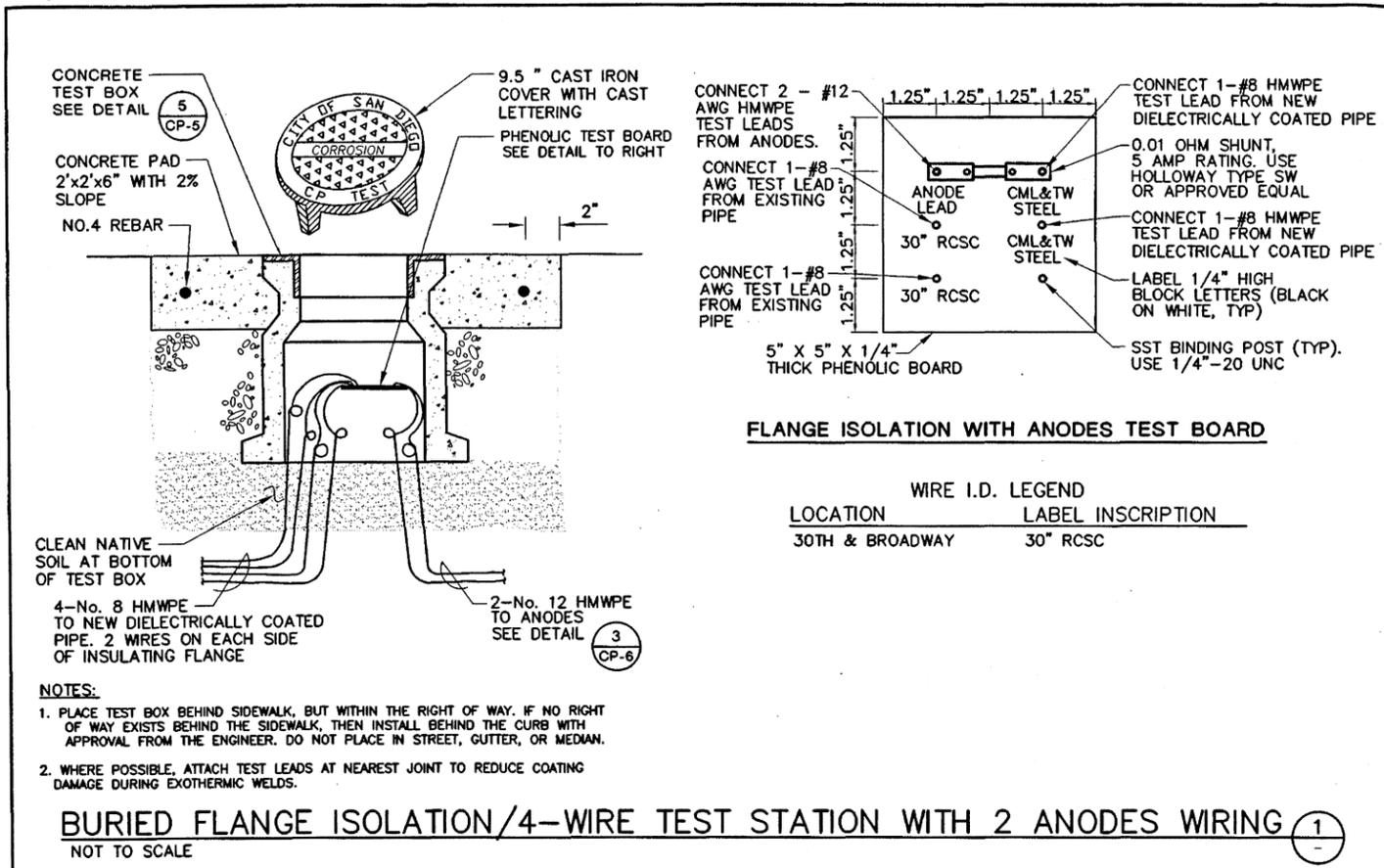
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 MAR 17 2017
 CALTRANS-PERMIT
 APPROVED ENCROACHMENT PERMIT
 Permit No.: 1116NUB0163
 MAR 23 2017
 C-21

30TH STREET PIPELINE REPLACEMENT
 30TH STREET
 16-INCH PVC DISTRIBUTION
 BROADWAY TO E ST

CITY OF SAN DIEGO, CALIFORNIA PUBLIC WORKS DEPARTMENT SHEET 25 OF 108 SHEETS		WATER W.O. S-12010 SEWER W.O. -
FOR CITY ENGINEER SHEILA BOSE PRINT NAME	DATE	DATE
RECEIVED		
DESCRIPTION	BY	APPROVED
ORIGINAL	REC	DATE
		FILED
PROJECT MANAGER JONG CHOI		PROJECT ENGINEER JENNY JARRELL
198-1725 CCS27 COORDINATE		1838-6285 CCS83 COORDINATE
CONTRACTOR INSPECTOR		DATE STARTED DATE COMPLETED
		38145-25-D

RICK ENGINEERING COMPANY
 5620 FRIARS ROAD
 SAN DIEGO, CA 92110
 619-291-0707
 (FAX) 619-291-4166
 rickengineering.com
 Riverside - Orange - Sacramento - San Luis Obispo - Phoenix - Tucson - Denver





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MAR 17 2017
CALTRANS-PERMIT

1116 NUB0163
MAR 23 2017

PERMIT NUMBER _____
CO SD RTE 94 PM 2.5
AS-BUILT PLANS FOR ROADWAY GEOMETRIC AND ABOVE GROUND FEATURES

STATE REPRESENTATIVE _____ DATE _____

CP-4

30TH STREET PIPELINE REPLACEMENT
CATHODIC PROTECTION DETAILS

CITY OF SAN DIEGO, CALIFORNIA
PUBLIC WORKS DEPARTMENT
SHEET 77 OF 107 SHEETS

WATER WBS S-12010
SEWER WBS _____

APPROVED FOR CITY ENGINEER: SHEILA BOSE
DATE: _____
PROJECT MANAGER: JONG CHOI

PROJECT ENGINEER: JENNY JARRELL

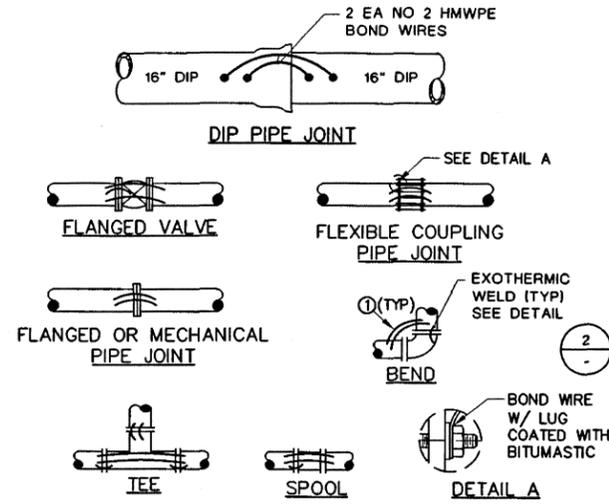
DESCRIPTION	BY	APPROVED	DATE	FILED
ORIGINAL	RYFE			

CONTRACTOR: R.F. Yeager
INSPECTOR: _____
DATE STARTED: _____
DATE COMPLETED: _____

38145-77-D

R.F. Yeager
ENGINEERING
9562 Winter Gardens, Suite D-151
Lakeside, Ca 92040
Ph: 619.647.6265
Fax: 619.561.0031

CATHODIC PROTECTION DETAILS



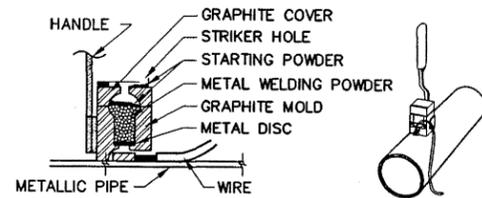
MATERIALS:

- ① BOND CABLE: AWG #2 COPPER ASTM B3 STRANDED ASTM B8 INSULATED ASTM D1248 TYPE 1, CLASS C GRADE 5.

NOTES:

- ALL BOND CABLE SHALL BE INSTALLED AT MINIMUM LENGTH.
- BOND CABLES SHALL NOT BE INSTALLED ACROSS INSULATING JOINTS.

JOINT BOND (1)
NOT TO SCALE



- FILE STRUCTURE CONNECTION AREA (3 IN. x 3 IN.) TO BARE SHINY METAL AND CLEAN.
- STRIP INSULATION FROM WIRE.
- HOLD MOLD FIRMLY WITH OPENING AWAY FROM OPERATOR AND IGNITE WITH STRIKER.
- REMOVE SLAG FROM CONNECTION AND PEEN WELD FOR SOUNDNESS.
- COVER CONNECTION AND EXPOSED STRUCTURE SURFACE WITH A BITUMINOUS COATING COMPOUND. PLACE PLASTIC SHIELD CAP FIRMLY OVER CONNECTION.

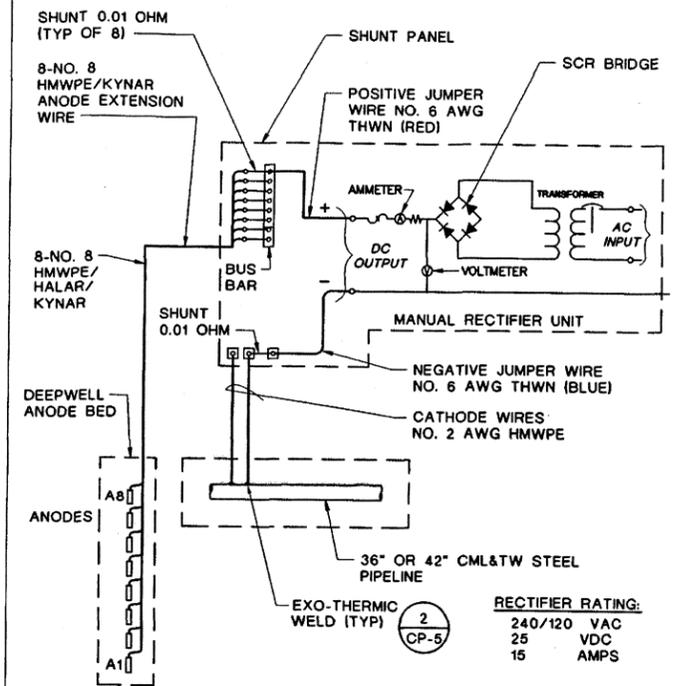
EXOTHERMIC WELD NOTES:

- ONE WELD SHALL BE USED FOR EACH.
- CLEAN OIL OR GREASE FROM CABLE WITH A RAPID-DRYING SOLVENT. REMOVE ONLY ENOUGH INSULATION FROM THE CABLE TO ALLOW THE EXOTHERMIC WELD CONNECTION TO BE MADE.
- REMOVE ALL COATING, DIRT, GRIME, AND GREASE FROM THE METAL STRUCTURE AT WELD LOCATIONS BY WIRE BRUSHING AND/OR USE OF SUITABLE SAFE SOLVENTS. CLEAN THE STRUCTURE TO A BRIGHT, SHINY SURFACE. THE AREA OF THE STRUCTURE WHERE THE ATTACHMENT IS TO BE MADE MUST BE DRY.
- OPEN WELD MOLD AND PLACE METAL DISC INSIDE AT BOTTOM OF MOLD. POUR METAL WELDING POWDER INTO MOLD AND ON TOP OF METAL DISC. STARTING POWDER IS CAKED AT THE BOTTOM OF THE WELD CHARGE CONTAINER. TAP WELD CHARGE CONTAINER AND POUR HALF OF STARTING POWDER INTO WELD MOLD. CLOSE THE TOP OF WELD MOLD AND POUR THE REMAINING STARTING POWDER IN STRIKING HOLE. THE WELD MOLD IS NOW LOADED AND READY FOR USE.
- THE LEAD WIRE IS TO BE HELD AT AN ANGLE TO THE SURFACE WHEN WELDING. ONLY ONE WIRE SHALL BE ATTACHED WITH EACH WELD. HOLD LOADED WELD MOLD FIRMLY ON PIPE AND WIRE. IGNITE STARTING POWDER IN STRIKING HOLE USING A STRIKER. HOLD WELD MOLD FIRMLY AGAINST PIPE FOR 5 SECONDS TO ALLOW FOR WELD PROCESS.
- WELDS SHALL BE TESTED BY STRIKING THE WELD NUGGET WITH A TWO POUND HAMMER WHILE PULLING FIRMLY ON THE WIRE. ALL UNSOUND WELDS SHALL BE REMOVED, THE SURFACES RECLEANED, REWELDED, AND RETESTED. WELD SLAG SHALL BE REMOVED.
- APPLY PRIMER AND ELASTOMERIC WELD CAP TO THE WELD AND APPLY A BITUMASTIC COATING MATERIAL TO ALL EXPOSED AREAS AROUND THE CAP AND WIRES IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. THE COATING SHALL OVERLAP THE STRUCTURE COATING A MINIMUM OF 3 INCHES.

PERMIT NUMBER
CO SD RTE 94 PM 2.5
AS-BUILT PLANS FOR ROADWAY
GEOMETRIC AND ABOVE GROUND
FEATURES

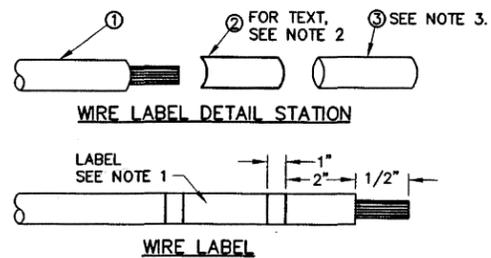
EXOTHERMIC WELD (2)
NOT TO SCALE

STATE REPRESENTATIVE DATE



CATHODIC PROTECTION SCHEMATIC (3)
NOT TO SCALE

RECTIFIER RATING:
240/120 VAC
25 VDC
15 AMPS



CPTS# (CATHODIC PROTECTION TEST STATION NUMBERING)
CPTS#1, 2, 3,N

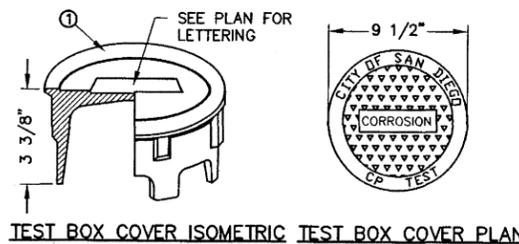
NOTES:

- CABLES SHALL BE TAGGED USING TIMES ROMAN 10 POINT FONT.
- TEXT SHALL BE PRESENTED IN THE FOLLOWING ORDER:
 - TYPE OF INSTALLATION
 - STATIONING
 - PIPE DIAMETER
 - PIPE MATERIAL
 - WIRE DIRECTIONAL ORIENTATION
NORTH
SOUTH
EAST
WEST
- PLACE SLEEVE AFTER ATTACHMENT OF LABEL TO CABLE.
- BRASS TAGS MAY BE USED WITH APPROVAL FROM THE ENGINEER.

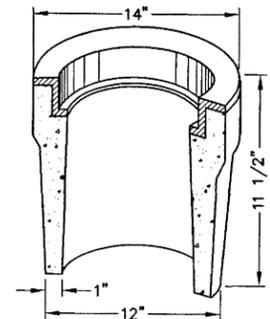
MATERIALS:

- ① CABLE: AWG ASTM B8 & B3.
- ② LABEL: FILE FOLDER, SELF ADHESIVE WHITE 2/3" X 3 1/8"
- ③ SLEEVE: HEAT SHRINK, POLYOLEFIN, CLEAR THIN WALL TUBING.

WIRE IDENTIFICATION (4)
NOT TO SCALE



TEST BOX COVER ISOMETRIC TEST BOX COVER PLAN



TEST BOX ISOMETRIC SECTION

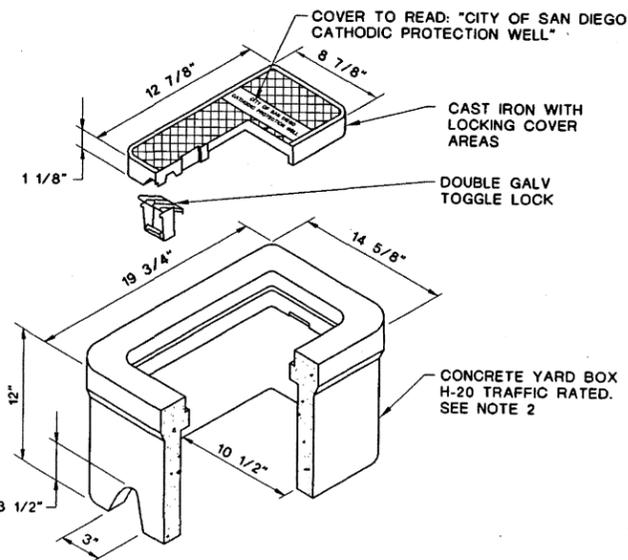
MATERIALS:

- ① COVER: ASTM A 48 CLASS 30.

NOTES:

- THE COVER SHALL HAVE CASTED MARKING IN 1/2" HIGH RAISED LETTERS.
- RING AND COVER SHALL BE H-20 TRAFFIC RATED.

CONCRETE TEST BOX (5)
NOT TO SCALE



NOTES:

- FINISH WELLHEAD AND VAULT PER CALIFORNIA WELL STANDARDS
- USE CHRISTY H-20 TRAFFIC RATED BOX OR APPROVED EQUAL.

ANODE WELLHEAD VAULT (6)
NOT TO SCALE

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MAR 23 2017

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30TH STREET PIPELINE REPLACEMENT
CATHODIC PROTECTION DETAILS

CITY OF SAN DIEGO, CALIFORNIA
PUBLIC WORKS DEPARTMENT
SHEET 78 OF 107 SHEETS

WATER WBS S-12010
SEWER WBS -

FOR CITY ENGINEER: SHEILA BOSE, PRINT NAME, DATE, RCE #
PROJECT MANAGER: JONG CHOI

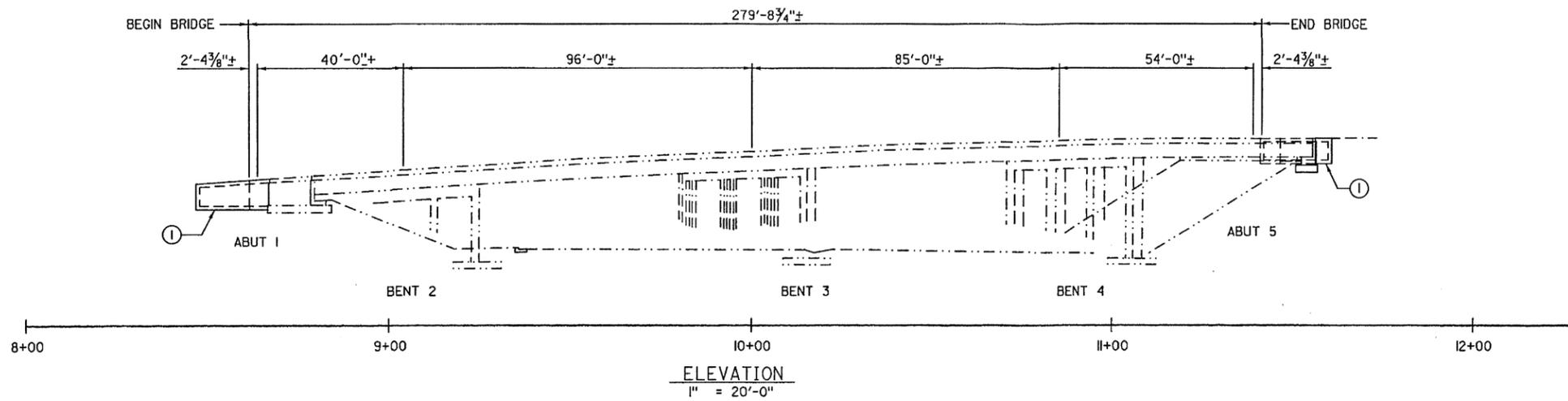
DESCRIPTION BY APPROVED DATE FILMED
ORIGINAL R/Y/E

JENNY JARRELL
PROJECT ENGINEER
SEE SHEETS
CCS27 COORDINATE
SEE SHEETS
CCS63 COORDINATE

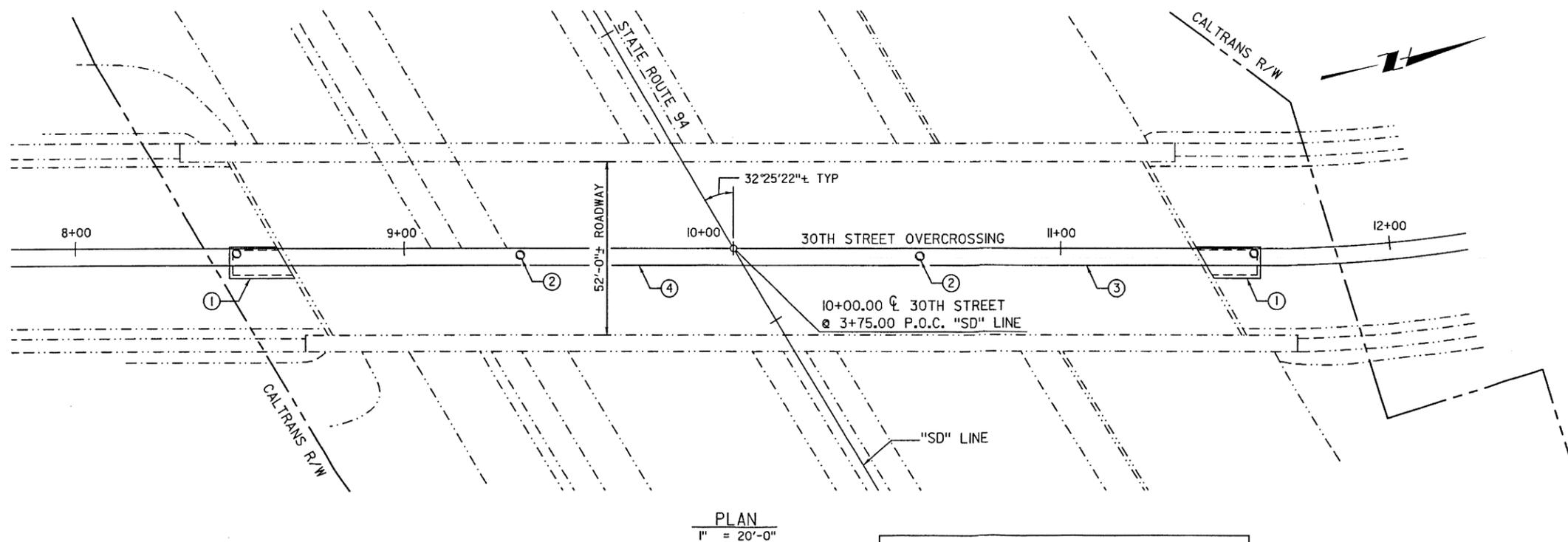
CONTRACTOR: R.F. Yeager, 9562 Winter Gardens, Suite D-151, Lakeside, Ca 92040, Ph: 619.647.6266, Fax: 619.561.0031

DATE STARTED: _____ DATE COMPLETED: _____

38145-78-D



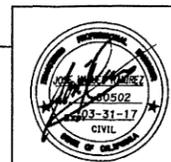
- LEGEND**
- ① PIPELINE VAULT WITH 36" MANHOLE
 - ② EXISTING MANHOLE
 - ③ PROPOSED PIPELINE
 - ④ PIPE RESTRAINT - SEE FOUNDATION PLAN SHEET



CONSTRUCTION NOTES:

1. ALL WORK SHALL CONFORM TO THE 2015 CALTRANS STANDARD SPECIFICATIONS.
2. CONTRACTOR SHALL FIELD VERIFY ALL CONTROLLING DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

PERMIT NUMBER _____
 CO SD RTE 94 PM 2.5
 AS-BUILT PLANS FOR ROADWAY
 GEOMETRIC AND ABOVE GROUND
 FEATURES
 STATE REPRESENTATIVE _____ DATE _____



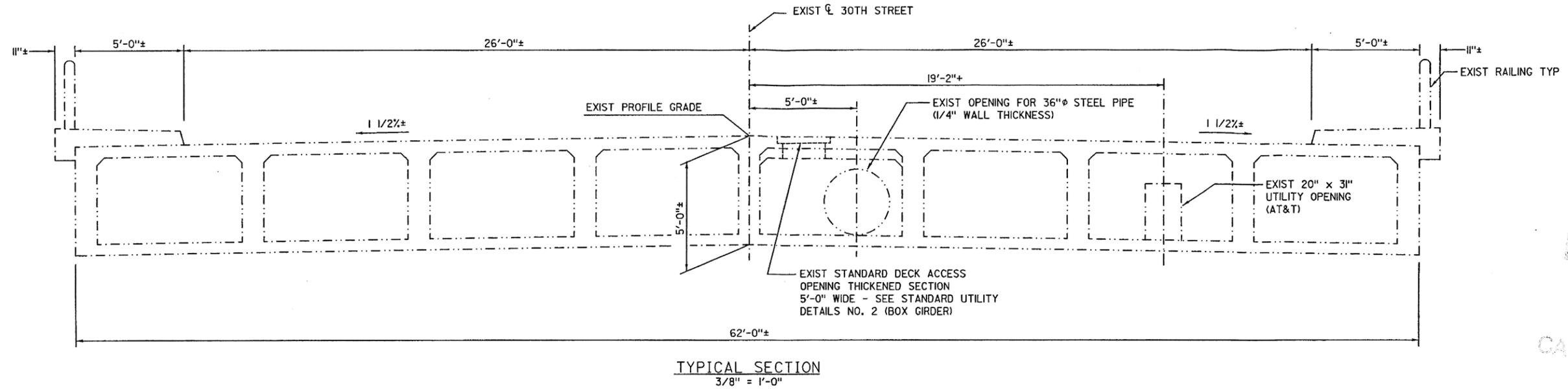
30TH STREET PIPELINE REPLACEMENT 30TH STREET BRIDGE GENERAL PLAN			
CITY OF SAN DIEGO, CALIFORNIA PUBLIC WORKS DEPARTMENT SHEET 80 OF 108 SHEETS			WATER WBS S-12010 SEWER WBS -
APPROVED FOR CITY ENGINEER	DATE	SUBMITTED BY JONG CHOI PROJECT MANAGER	
DESCRIPTION	BY	APPROVED	DATE
ORIGINAL	KLF		
CHECKED BY JENNY JARRELL PROJECT ENGINEER			SEE SHEETS CCS27 COORDINATE
			SEE SHEETS CCS83 COORDINATE
CONTRACTOR INSPECTOR			DATE STARTED DATE COMPLETED
			38145-80-D

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S-1

30TH STREET



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CALTRANS-PERMIT

116NUB0163
MAR 23 2017

**VAULT DESIGN
GENERAL NOTES
LOAD AND RESISTANCE FACTOR DESIGN**

DESIGN: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 6TH EDITION AND THE CALTRANS AMENDMENTS PREFACE DATED JANUARY 2014

LIVE LOAD: HL93 AND PERMIT DESIGN LOAD

LATERAL EARTH PRESSURES: EQUIVALENT FLUID PRESSURE FOR AT-REST CONDITIONS = 42 pcf
UNIFORM LIVE LOAD SURCHARGE PRESSURE ON WALL = 75 PSF

SOIL PARAMETERS: ALLOWABLE BEARING PRESSURE = 9 ksf

REINFORCED CONCRETE:
f_y = 60 ksi
f'c = 4 ksi (UNLESS OTHERWISE NOTED)
n = 8

STRUCTURAL STEEL:
PLATES AND BARS: ASTM A709, f_y = 36 ksi
HEADED STUDS: ASTM A108, f_u = 65 ksi
BOLTS: ASTM A307 Gr. A, f_u = 60 ksi
WT-SHAPES: ASTM A992, f_y = 50 ksi

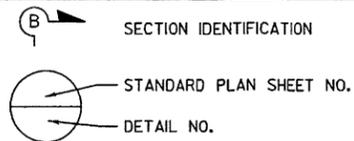
INDEX TO PLANS

SHEET NO.	TITLE
S-1	GENERAL PLAN
S-2	TYPICAL SECTION AND INDEX TO PLANS
S-3	FOUNDATION PLAN
S-4	WATERLINE VAULT DETAILS NO. 1
S-5	WATERLINE VAULT DETAILS NO. 2
S-6	WATERLINE VAULT DETAILS NO. 3

CALTRANS STANDARD PLANS DATED 2015

A3A	ABBREVIATIONS (SHEET 1 OF 3)
A3B	ABBREVIATIONS (SHEET 2 OF 3)
A3C	ABBREVIATIONS (SHEET 3 OF 3)
RSP B7-II	UTILITY DETAILS

PLAN SYMBOLS



QUANTITIES

STRUCTURE EXCAVATION (BRIDGE)	108 CY
STRUCTURE BACKFILL (BRIDGE)	24 CY
STRUCTURAL CONCRETE, BOX CULVERT	42 CY
BAR REINFORCING STEEL (BOX CULVERT)	11000 LBS
MISCELLANEOUS METAL (BRIDGE)	2240 LBS
DRILL AND BOND DOWEL	25 LF
PTFE PIPE SLIDE BEARING ASSEMBLY	2 EA
REMOVE CONCRETE (STRUCTURE)	1 LS

S-2

30TH STREET PIPELINE REPLACEMENT
30TH STREET BRIDGE
TYPICAL SECTION AND INDEX TO PLANS

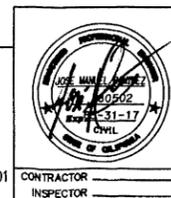
CITY OF SAN DIEGO, CALIFORNIA
PUBLIC WORKS DEPARTMENT
SHEET 81 OF 108 SHEETS

WATER WBS S-12010
SEWER WBS -

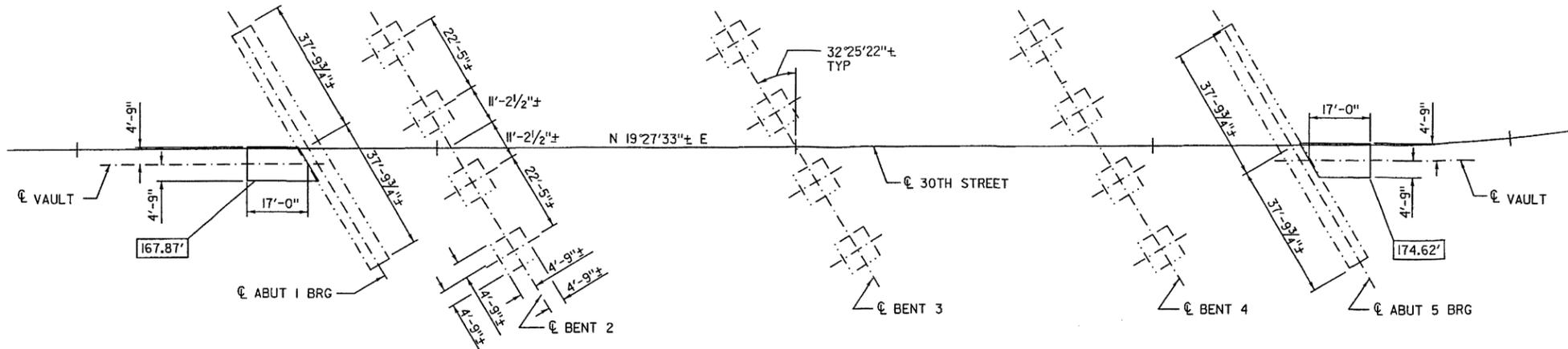
DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	KLF			

APPROVED FOR CITY ENGINEER _____ DATE _____
DCE NAME _____ RCE # _____
SUBMITTED BY JONG CHOI PROJECT MANAGER
CHECKED BY JENNY JARRELL PROJECT ENGINEER
SEE SHEETS CCS27 COORDINATE
SEE SHEETS CCS83 COORDINATE
38145-81-D

PERMIT NUMBER _____
CO SD RTE 94 PM 2.5
AS-BUILT PLANS FOR ROADWAY
GEOMETRIC AND ABOVE GROUND
FEATURES
STATE REPRESENTATIVE _____ DATE _____



CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____



1116 NUB0163
MAR 23 2017

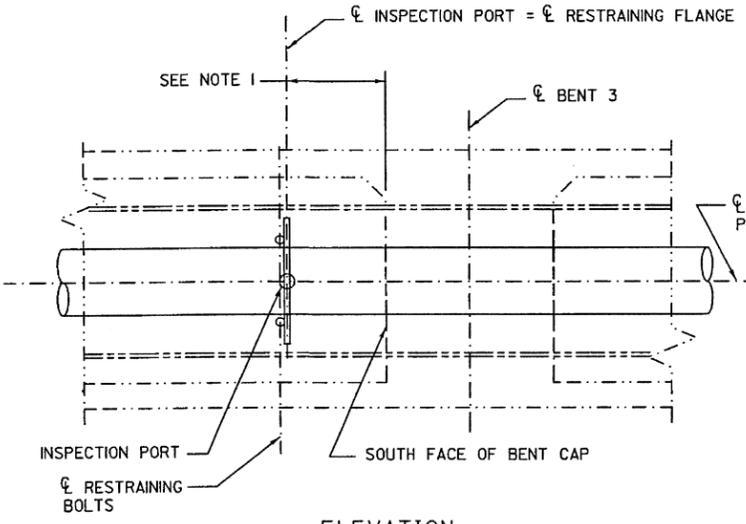
RECEIVED

MAR 17 2017

CALTRANS-PERMIT

LEGEND
X.XXX BOTTOM OF FOOTING ELEVATION

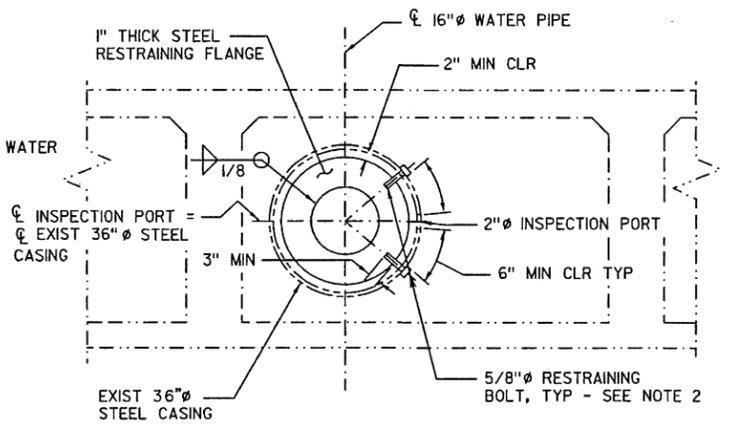
FOUNDATION PLAN
1" = 20'-0"



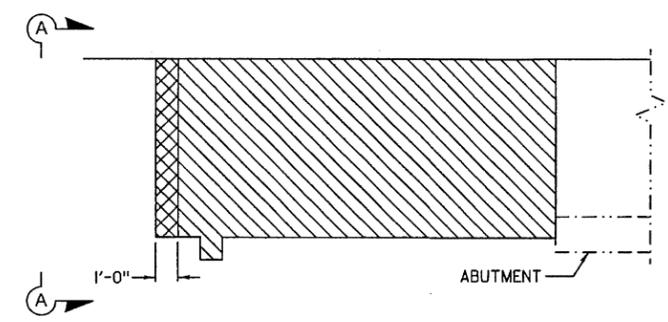
ELEVATION

NOTES:

1. THE DISTANCE BETWEEN CENTERLINE OF RESTRAINING FLANGE AND FACE OF BENT 3 CAP SHALL BE LIMITED TO A MINIMUM OF 3 FEET AND A MAXIMUM OF 10 FEET.
2. RESTRAINING BOLTS SHALL BE FULLY THREADED.



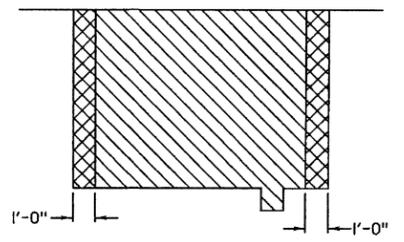
SECTION



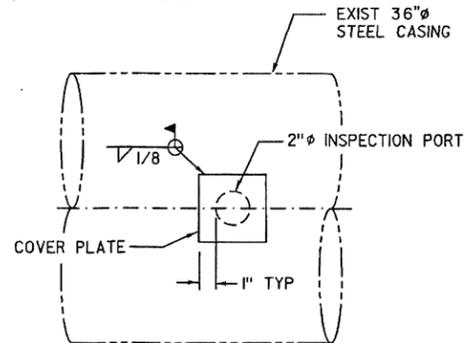
ELEVATION

LEGEND
STRUCTURE EXCAVATION
STRUCTURE BACKFILL

NOTE: ABUTMENT 1 VAULT SHOWN, ABUTMENT 5 VAULT SIMILAR
LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL
NO SCALE



VIEW A-A



COVER PLATE DETAIL
NO SCALE

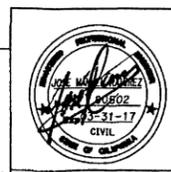
SUGGESTED CONSTRUCTION SEQUENCE:

1. TAP TWO THREADED HOLES IN EXIST 36"Ø STEEL CASING TO RECEIVE 5/8"Ø BOLTS. THREADED HOLES SHALL BE ALIGNED VERTICALLY AND SHALL COMPLETELY PENETRATE CASING WALL.
2. DRILL HOLE IN EXIST 36"Ø STEEL CASING FOR INSPECTION PORT. INSPECTION PORT SHALL BE LOCATED RELATIVE TO RESTRAINING BOLTS SUCH THAT LOCATION OF RESTRAINING FLANGE CAN BE VERIFIED.
3. INSTALL 16"Ø WATER PIPE SUCH THAT A SMALL GAP REMAINS BETWEEN RESTRAINING FLANGE AND THREADED HOLES TO ALLOW INSTALLATION OF RESTRAINING BOLTS. USE INSPECTION PORT TO VISUALLY VERIFY LOCATION OF RESTRAINING FLANGE.
4. INSTALL RESTRAINING BOLTS. WRAP RESTRAINING BOLT THREADS WITH TEFLON TAPE PRIOR TO INSTALLATION TO ENSURE WATERTIGHTNESS OF EXIST 36"Ø STEEL CASING.
5. CAREFULLY SLIDE 16"Ø WATER PIPE UNTIL CONTACT IS MADE BETWEEN RESTRAINING FLANGE AND RESTRAINING BOLTS. CARE SHALL BE EXERCISED TO AVOID IMPOSING UNNECESSARY LOADS ON BOLTS.
6. SEAL INSPECTION PORT BY WELDING COVER PLATE OVER INSPECTION PORT TO ENSURE CASING IS WATERTIGHT. COVER PLATE SHALL BE SAME THICKNESS AS CASING. SEE COVER PLATE DETAIL THIS SHEET.

PIPE RESTRAINT DETAILS
NO SCALE

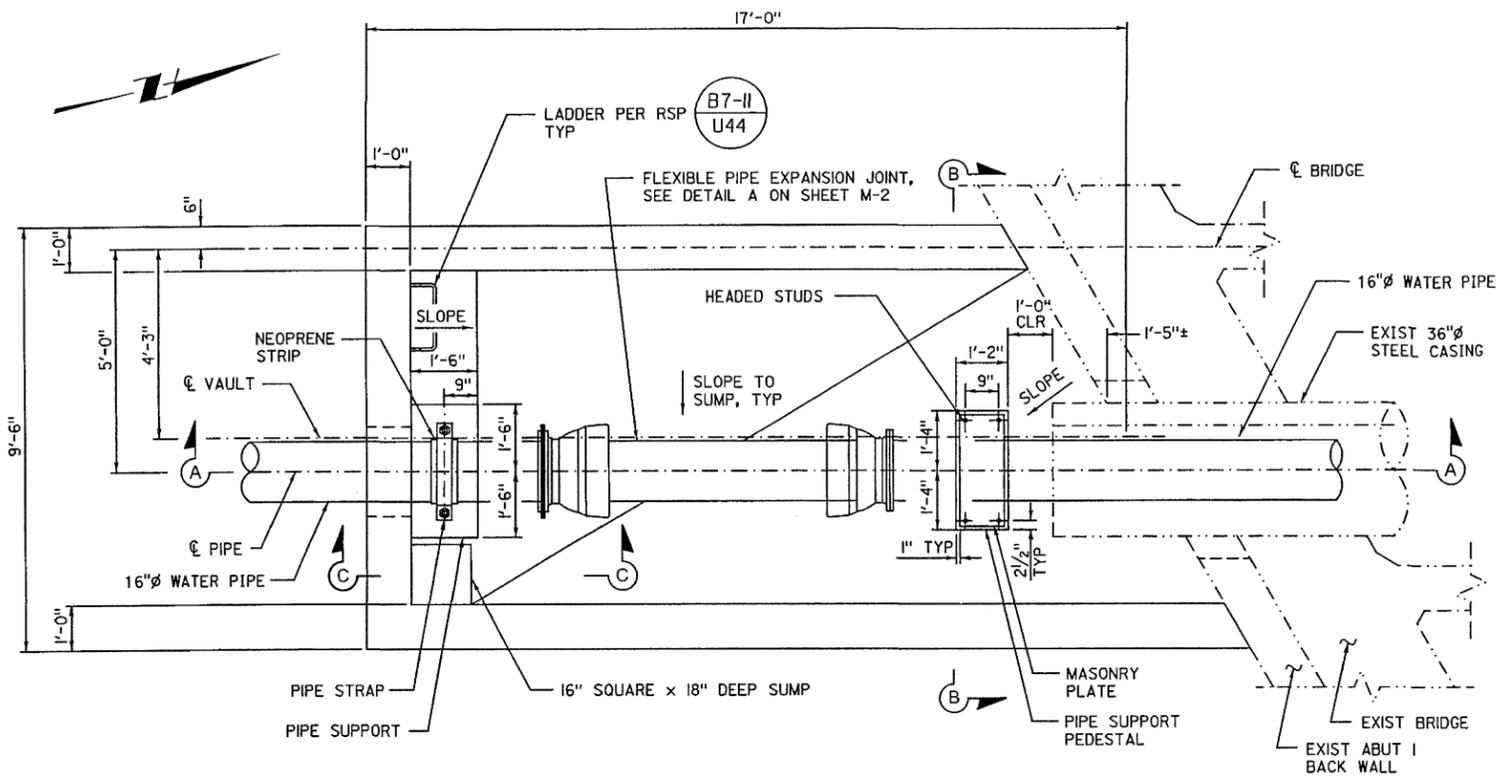
PERMIT NUMBER _____
CO SD RTE 94 PM 2.5
AS-BUILT PLANS FOR ROADWAY
GEOMETRIC AND ABOVE GROUND
FEATURES
STATE REPRESENTATIVE _____ DATE _____

KLEINFELDER
Bright people. Right Solutions.
550 West C Street Suite 1200 San Diego, CA. 92101
Tel (619) 831-4600 Fax (619) 232-1039



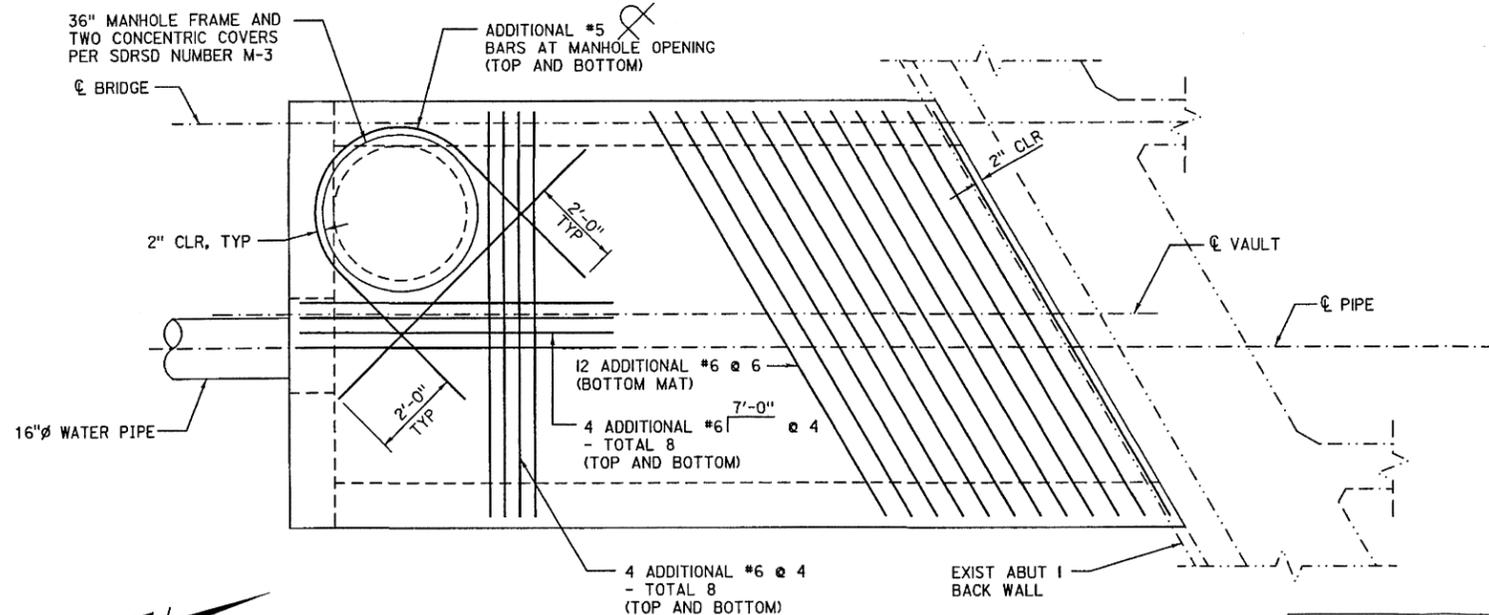
30TH STREET PIPELINE REPLACEMENT
30TH STREET BRIDGE
FOUNDATION PLAN

CITY OF SAN DIEGO, CALIFORNIA PUBLIC WORKS DEPARTMENT SHEET 82 OF 108 SHEETS		WATER WBS S-12010 SEWER WBS -
APPROVED FOR CITY ENGINEER _____ DATE _____	SUBMITTED BY JONG CHOI PROJECT MANAGER	
DCE NAME _____ RCE # _____	DESIGNED BY JENNY JARRELL PROJECT ENGINEER	
DESCRIPTION ORIGINAL BY KLF	APPROVED	DATE
FILED		
SEE SHEETS CCS27 COORDINATE	SEE SHEETS CCS83 COORDINATE	
CONTRACTOR INSPECTOR _____ DATE STARTED _____ DATE COMPLETED _____		38145-82-D



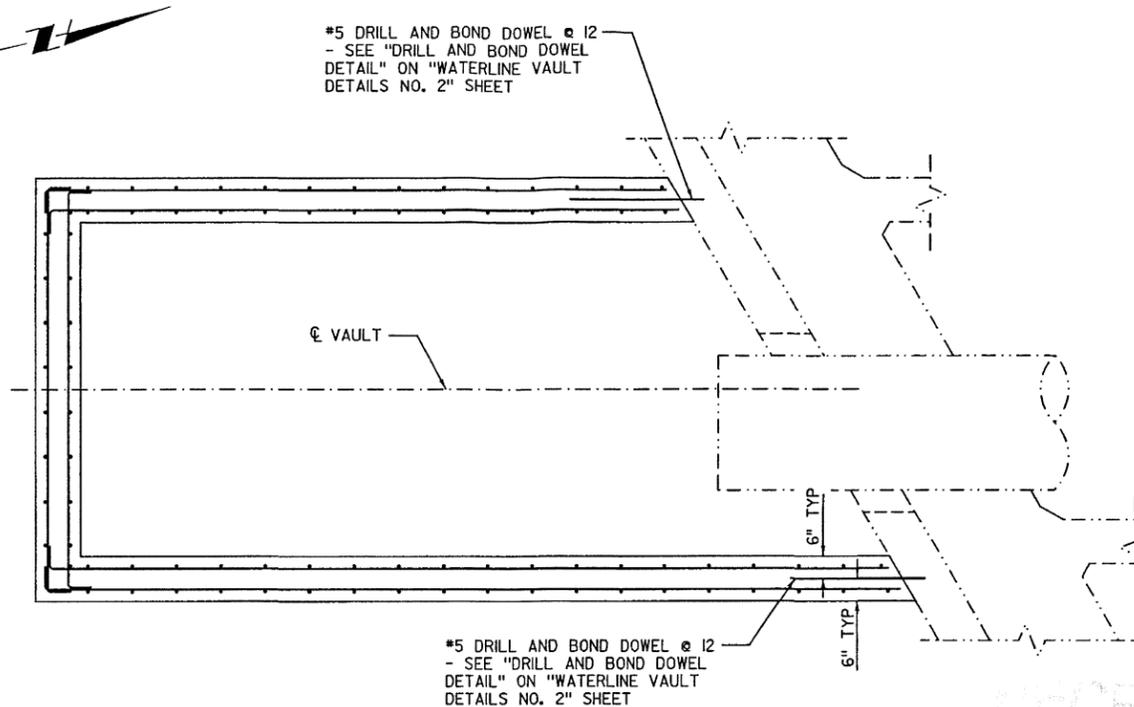
VAULT PLAN AT ABUTMENT 1
1/2" = 1'-0"

NOTE: FOR "SECTION A-A", "SECTION B-B", AND "SECTION C-C" SEE WATERLINE VAULT DETAILS NO. 2 SHEET

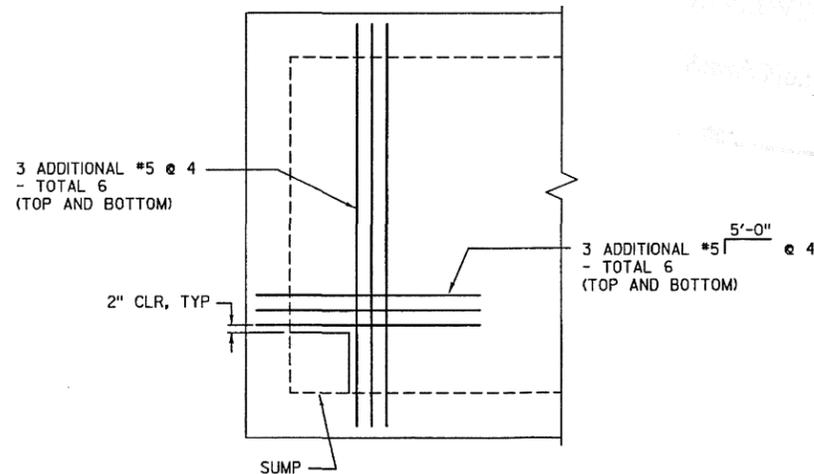


VAULT ROOF PLAN AT ABUTMENT 1
1/2" = 1'-0"

NOTE: ROOF SLAB SHALL FOLLOW ROADWAY PROFILE AND CROSSFALL



VAULT REINFORCEMENT PLAN AT ABUTMENT 1
1/2" = 1'-0"



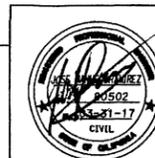
VAULT BOTTOM SLAB REINFORCEMENT AT SUMP
1/2" = 1'-0"

NOTE: ABUTMENT 1 VAULT SHOWN, ABUTMENT 5 VAULT SIMILAR

PERMIT NUMBER CO SD RTE 94 PM 2.5
AS-BUILT PLANS FOR ROADWAY
GEOMETRIC AND ABOVE GROUND
FEATURES
STATE REPRESENTATIVE _____ DATE _____



550 West C Street Suite 1200 San Diego, CA. 92101
Tel (619) 831-4600 Fax (619) 232-1039



CONTRACTOR _____
INSPECTOR _____

30TH STREET PIPELINE REPLACEMENT
30TH STREET BRIDGE
WATERLINE VAULT DETAILS NO. 1

CITY OF SAN DIEGO, CALIFORNIA
PUBLIC WORKS DEPARTMENT
SHEET 83 OF 108 SHEETS

APPROVED FOR CITY ENGINEER _____	DATE _____	WATER WBS S-12010
SUBMITTED BY JONG CHOI PROJECT MANAGER		SEWER WBS _____
CHECKED BY JENNY JARRELL PROJECT ENGINEER		
DESCRIPTION ORIGINAL	BY KLF	APPROVED DATE FILMED
SEE SHEETS CCS27 COORDINATE		
SEE SHEETS CCS83 COORDINATE		
DATE STARTED _____		38145-83-D
DATE COMPLETED _____		

RECEIVED

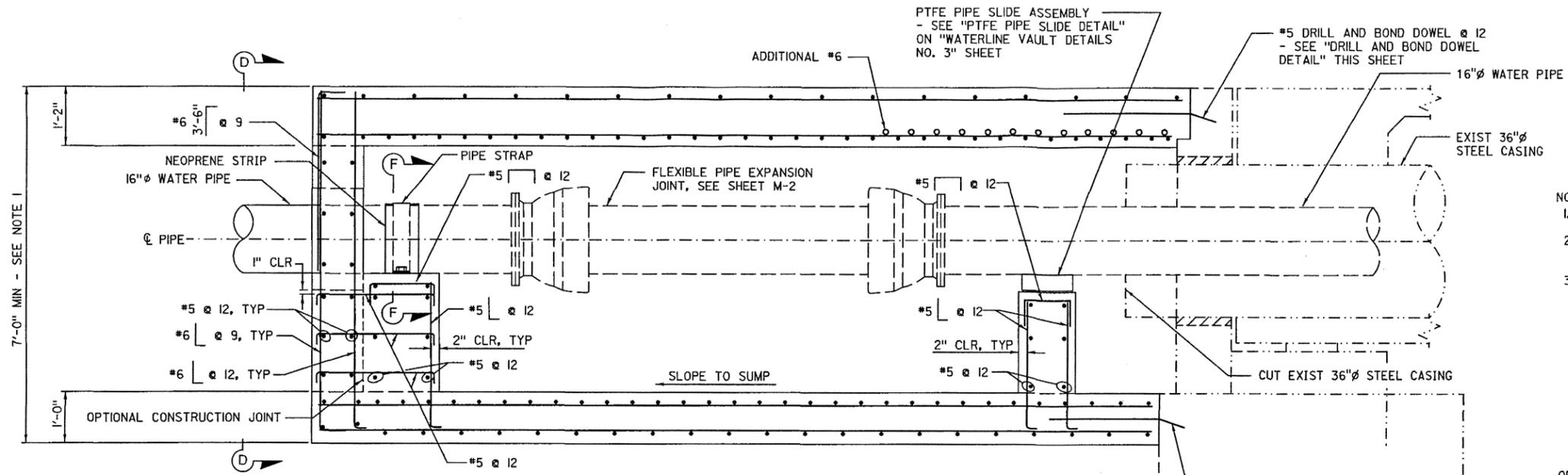
MAR 17 2017

CALTRANS PERMIT

1116 NUBO 163
MAR 23 2017

S-4

30TH STREET

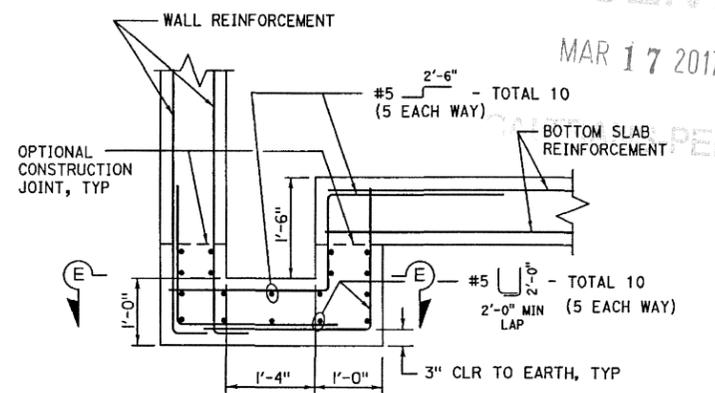


- NOTES:
1. ROOF SLAB SHALL FOLLOW ROADWAY PROFILE AND CROSSFALL.
 2. ABUTMENT 1 SHOWN, ABUTMENT 5 SIMILAR.
 3. FOR OPENINGS IN CONCRETE, TYPICAL REINFORCEMENT SHALL BE STOPPED 2" CLEAR OF OPENING.
 4. FOR SECTION F-F SEE "WATERLINE DETAILS NO. 3" SHEET.

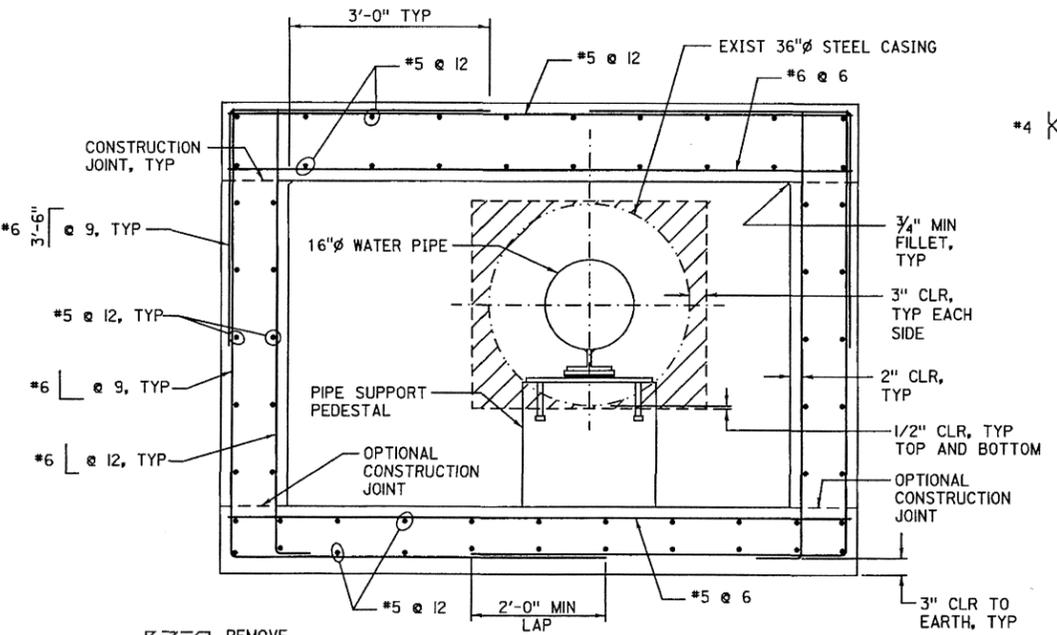
SECTION A-A
3/4" = 1'-0"

- NOTES:
1. DRILL AND BOND DOWEL SHALL NOT INTERFERE WITH EXISTING ABUTMENT REBAR.
 2. DRILL AND BOND DOWEL IS SUBJECT TO APPROVAL OF ENGINEER. INSTALLATION PROCEDURE SHALL COMPLY WITH MANUFACTURER'S INSTRUCTIONS.
 3. DRILL AND BOND DOWELS SHALL BE INSTALLED IN SOUND CONCRETE FREE OF CRACKS AND DELAMINATION.

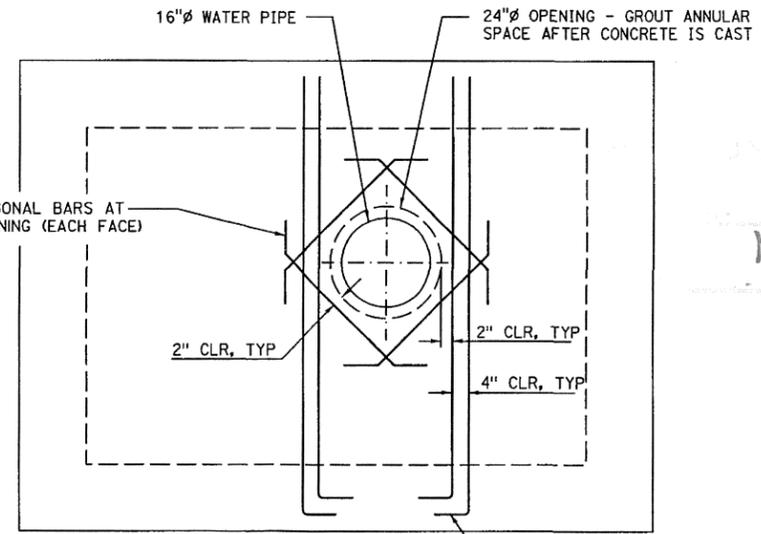
DRILL AND BOND DOWEL DETAIL
NO SCALE



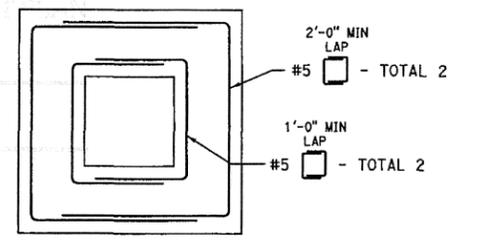
SECTION C-C
3/4" = 1'-0"



SECTION B-B
3/4" = 1'-0"



VIEW D-D
3/4" = 1'-0"

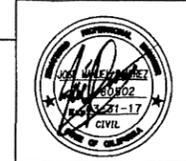


VIEW E-E
3/4" = 1'-0"

REMOVE CONCRETE BACKWALL

PERMIT NUMBER CO SD RTE 94 PM 2.5
 AS-BUILT PLANS FOR ROADWAY GEOMETRIC AND ABOVE GROUND FEATURES
 STATE REPRESENTATIVE _____ DATE _____

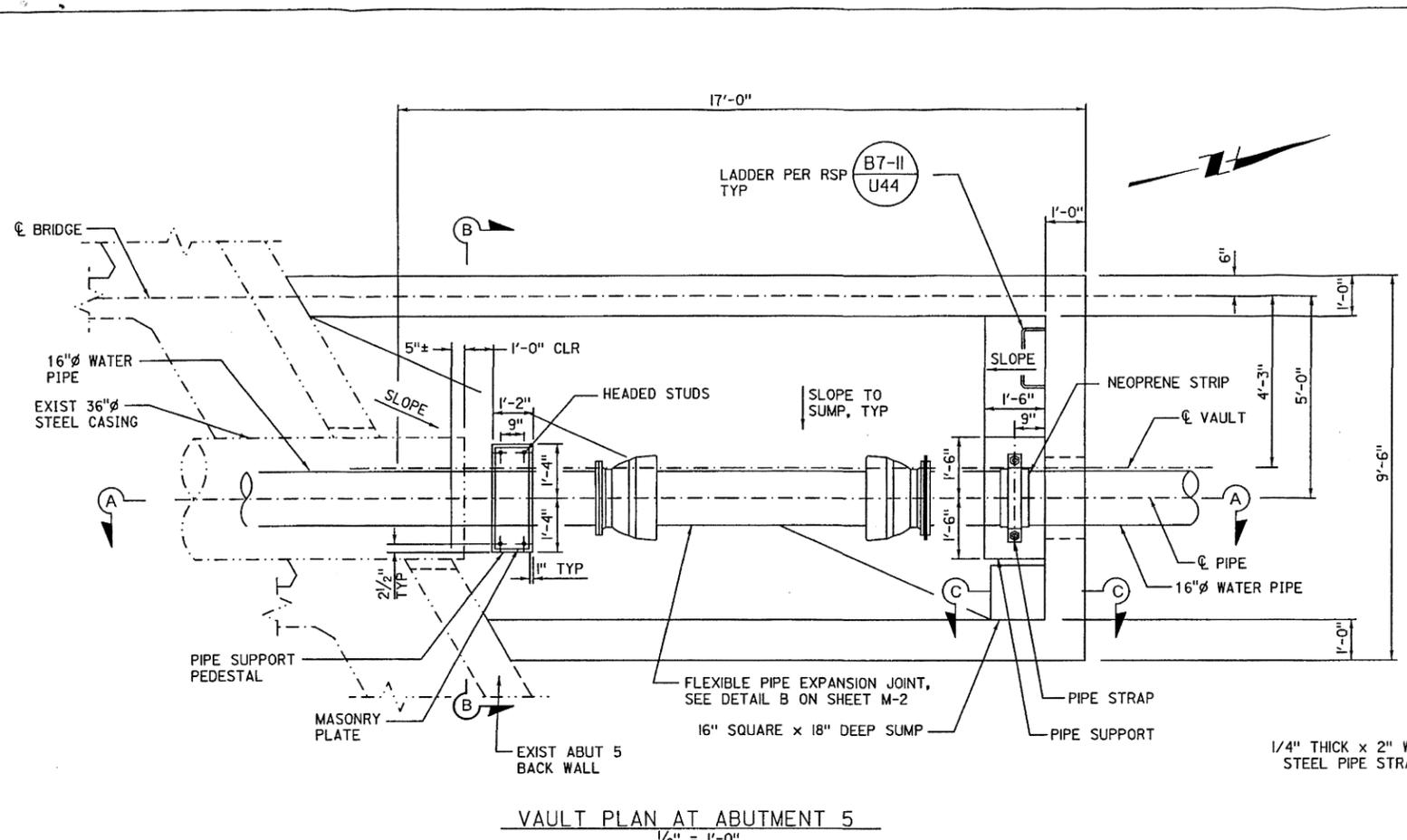
KLEINFELDER
 Bright people. Right Solutions.
 550 West C Street Suite 1200 San Diego, CA. 92101
 Tel (619) 831-4600 Fax (619) 232-1039



30TH STREET PIPELINE REPLACEMENT
 30TH STREET BRIDGE
 WATERLINE VAULT DETAILS NO. 2

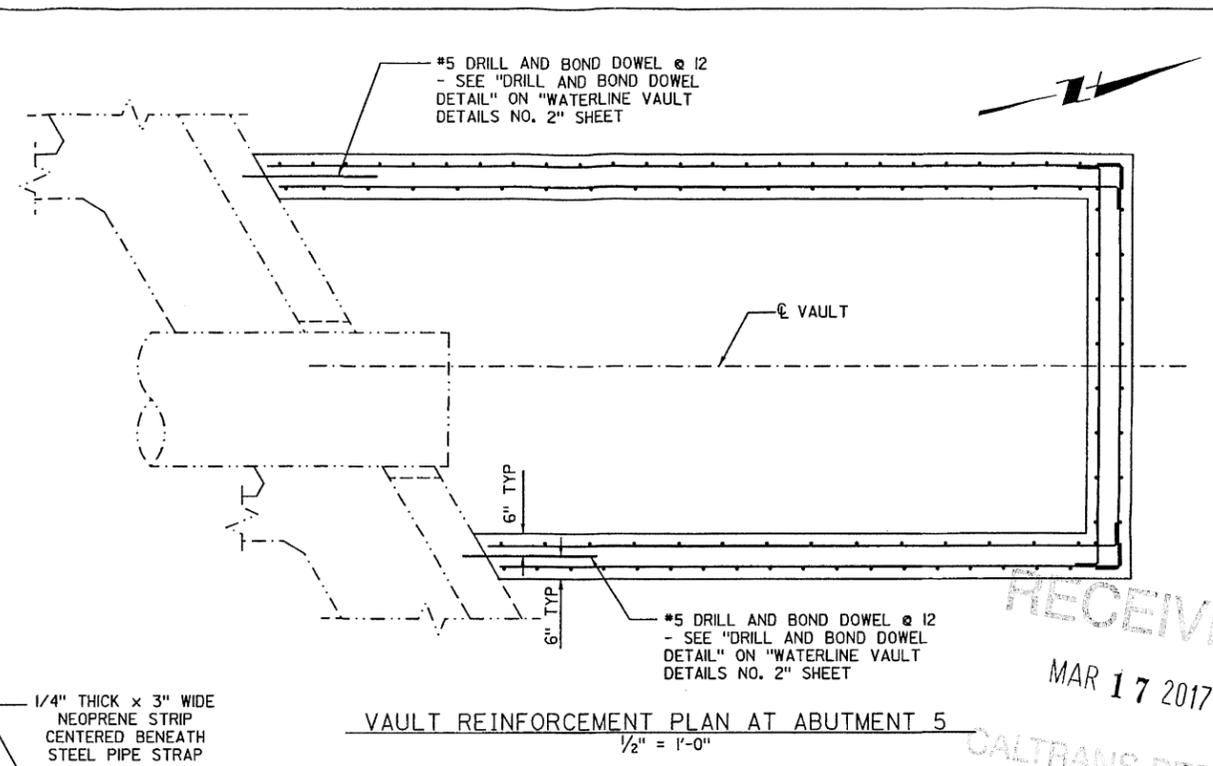
CITY OF SAN DIEGO, CALIFORNIA PUBLIC WORKS DEPARTMENT SHEET 84 OF 108 SHEETS		WATER WBS S-12010 SEWER WBS -
APPROVED FOR CITY ENGINEER	DATE	SUBMITTED BY JONG CHOI PROJECT MANAGER
DCE NAME	RCE #	CHECKED BY JENNY JARRELL PROJECT ENGINEER
DESCRIPTION ORIGINAL	BY KLF	APPROVED DATE FILMED
SEE SHEETS CCS27 COORDINATE		SEE SHEETS CCS83 COORDINATE
DATE STARTED		DATE COMPLETED
CONTRACTOR INSPECTOR		38145-84-D

30TH STREET



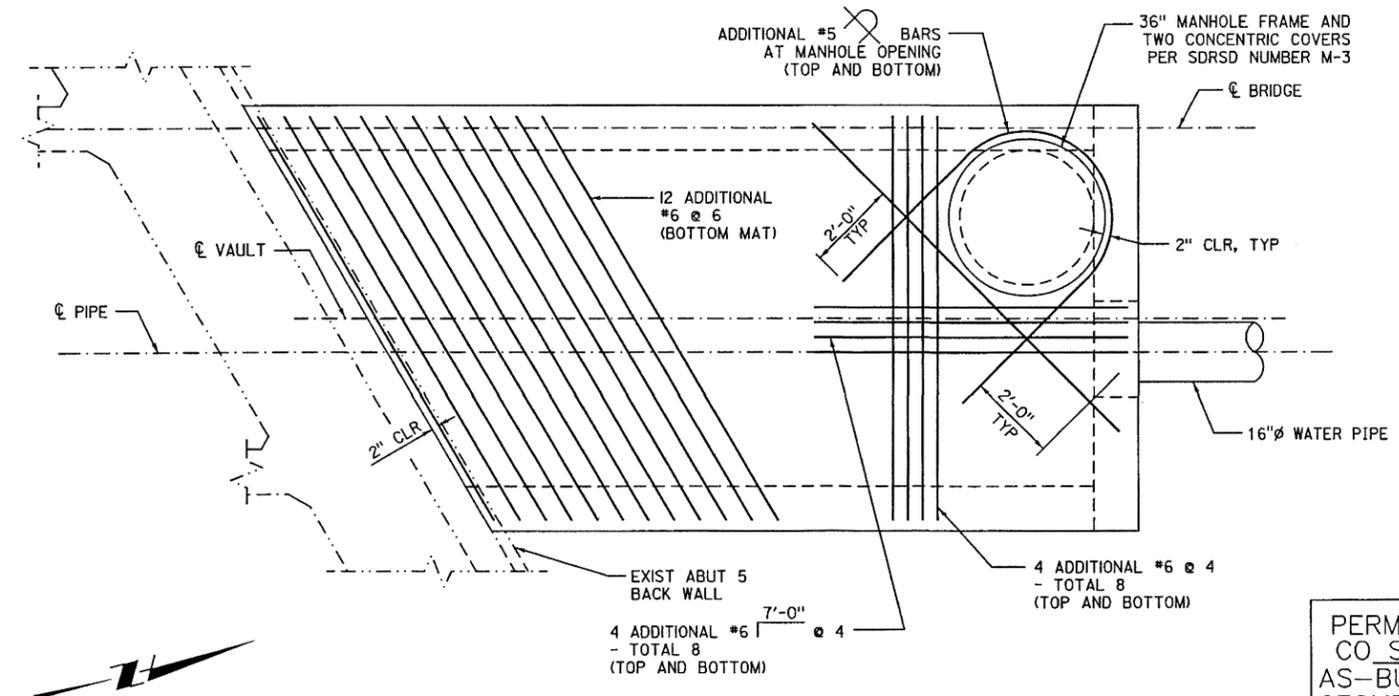
VAULT PLAN AT ABUTMENT 5
1/2" = 1'-0"

NOTE: FOR "SECTION A-A", "SECTION B-B", AND "SECTION C-C" SEE WATERLINE VAULT DETAILS NO. 2 SHEET



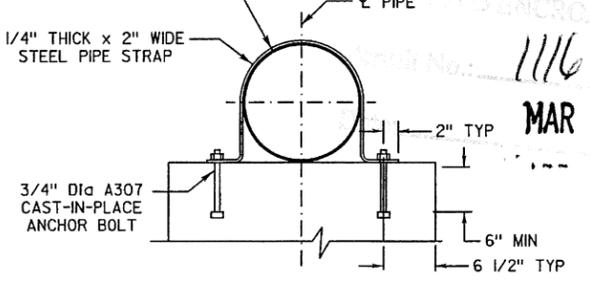
VAULT REINFORCEMENT PLAN AT ABUTMENT 5
1/2" = 1'-0"

RECEIVED
MAR 17 2017
CALTRANS PERMIT

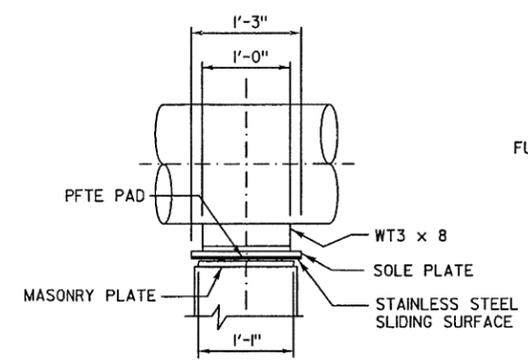


VAULT ROOF PLAN AT ABUTMENT 5
1/2" = 1'-0"

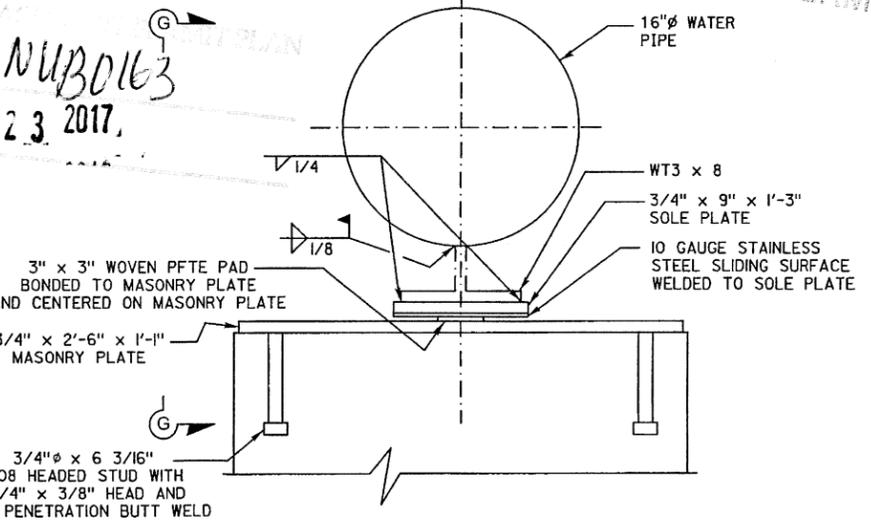
NOTE: ROOF SLAB SHALL FOLLOW ROADWAY PROFILE AND CROSSFALL



VIEW F-F
NO SCALE



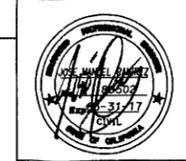
VIEW G-G
NO SCALE



PTFE PIPE SLIDE ASSEMBLY DETAIL
NO SCALE

PERMIT NUMBER CO SD RTE 94 PM 2.5
AS-BUILT PLANS FOR ROADWAY
GEOMETRIC AND ABOVE GROUND
FEATURES
STATE REPRESENTATIVE _____ DATE _____

KLEINFELDER
Bright people. Right Solutions.
550 West C Street Suite 1200 San Diego, CA. 92101
Tel (619) 831-4600 Fax (619) 232-1039

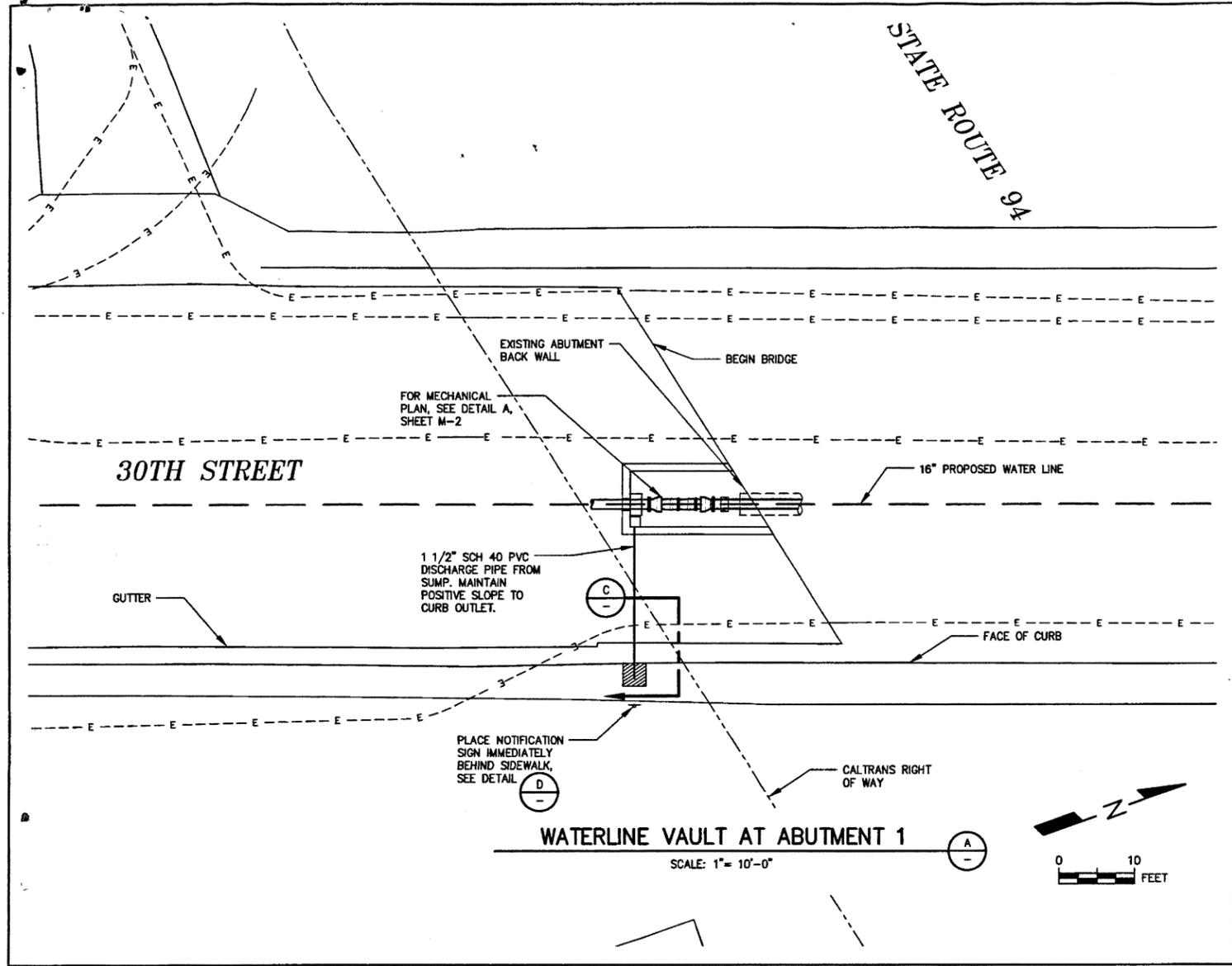


30TH STREET PIPELINE REPLACEMENT
30TH STREET BRIDGE
WATERLINE VAULT DETAILS NO. 3

CITY OF SAN DIEGO, CALIFORNIA PUBLIC WORKS DEPARTMENT SHEET 85 OF 108 SHEETS		WATER WBS S-12010 SEWER WBS -
APPROVED FOR CITY ENGINEER _____ DATE _____	DATE _____	DATE _____
DCE NAME _____	RCE # _____	DATE _____
DESCRIPTION ORIGINAL	BY KLF	APPROVED DATE FILMED
SUBMITTED BY JONG CHOI PROJECT MANAGER		DATE _____
ORDERED BY JENNY JARRELL PROJECT ENGINEER		DATE _____
SEE SHEETS CCS27 COORDINATE		DATE _____
SEE SHEETS CCS83 COORDINATE		DATE _____
CONTRACTOR _____		DATE STARTED _____
INSPECTOR _____		DATE COMPLETED _____

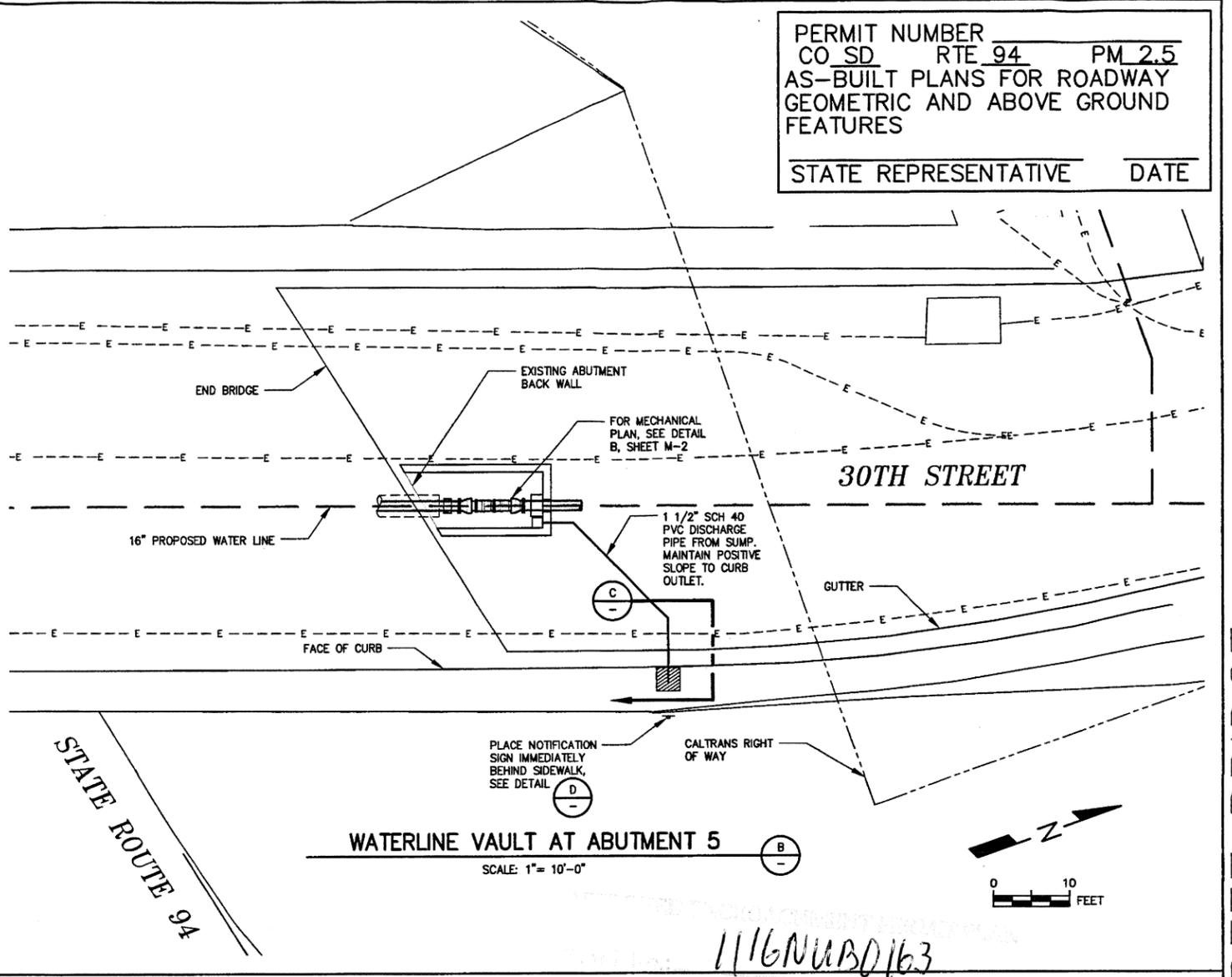
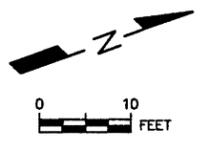
S-6

30TH STREET



WATERLINE VAULT AT ABUTMENT 1

SCALE: 1" = 10'-0"



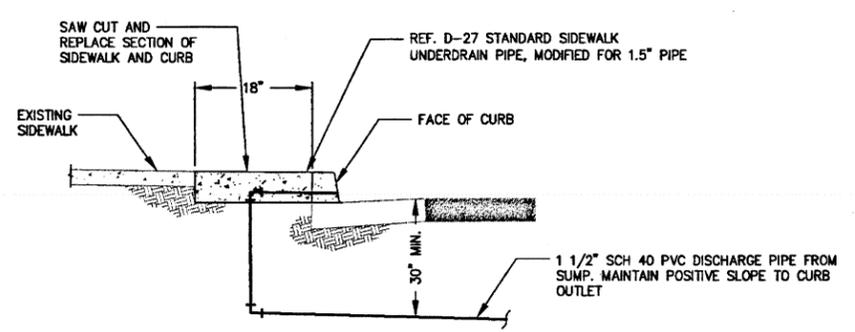
WATERLINE VAULT AT ABUTMENT 5

SCALE: 1" = 10'-0"



PERMIT NUMBER
 CO SD RTE 94 PM 2.5
 AS-BUILT PLANS FOR ROADWAY
 GEOMETRIC AND ABOVE GROUND
 FEATURES

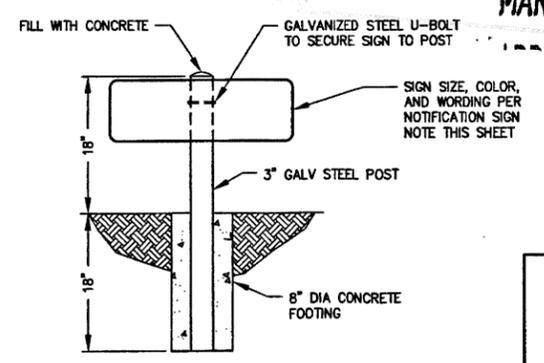
STATE REPRESENTATIVE _____ DATE _____



SIDEWALK UNDERDRAIN SECTION

NO SCALE

NOTIFICATION SIGN NOTE:
 PROVIDE 12" L x 6" H CORROSION-PROOF SIGN, WHITE LETTERS ON RED BACKGROUND WITH BAKED ON ENAMEL FINISH TO READ:
 CITY OF SAN DIEGO
 IN CASE OF DISCHARGE
 CALL: EMERGENCY
 619-515-3525



SIGN DETAIL

NO SCALE

MAR 23 2017

RECEIVED

MAR 17 2017

CALTRANS-PERMIT

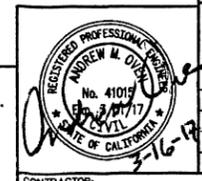
M-1

30TH STREET PIPELINE REPLACEMENT
 30TH STREET BRIDGE
 WATERLINE VAULTS AND DETAILS 1

CITY OF SAN DIEGO, CALIFORNIA
 PUBLIC WORKS DEPARTMENT
 SHEET 86 OF 108 SHEETS

APPROVED:	DATE	WATER	S-12010
FOR CITY ENGINEER		SEWER	
SHEILA BOSE		RES.	
PRINT NAME	RCE #	SUBMITTED BY:	JONG CHOI
DESCRIPTION	BY	APPROVED	PROJECT MANAGER
ORIGINAL	DWEI	DATE	JENNY JARRELL
		FILED	PROJECT ENGINEER
			SEE SHEETS
			CS27 COORDINATE
			SEE SHEETS
			CS83 COORDINATE
CONTRACTOR:	DATE STARTED:	38145-86-D	
INSPECTOR:	DATE COMPLETED:		

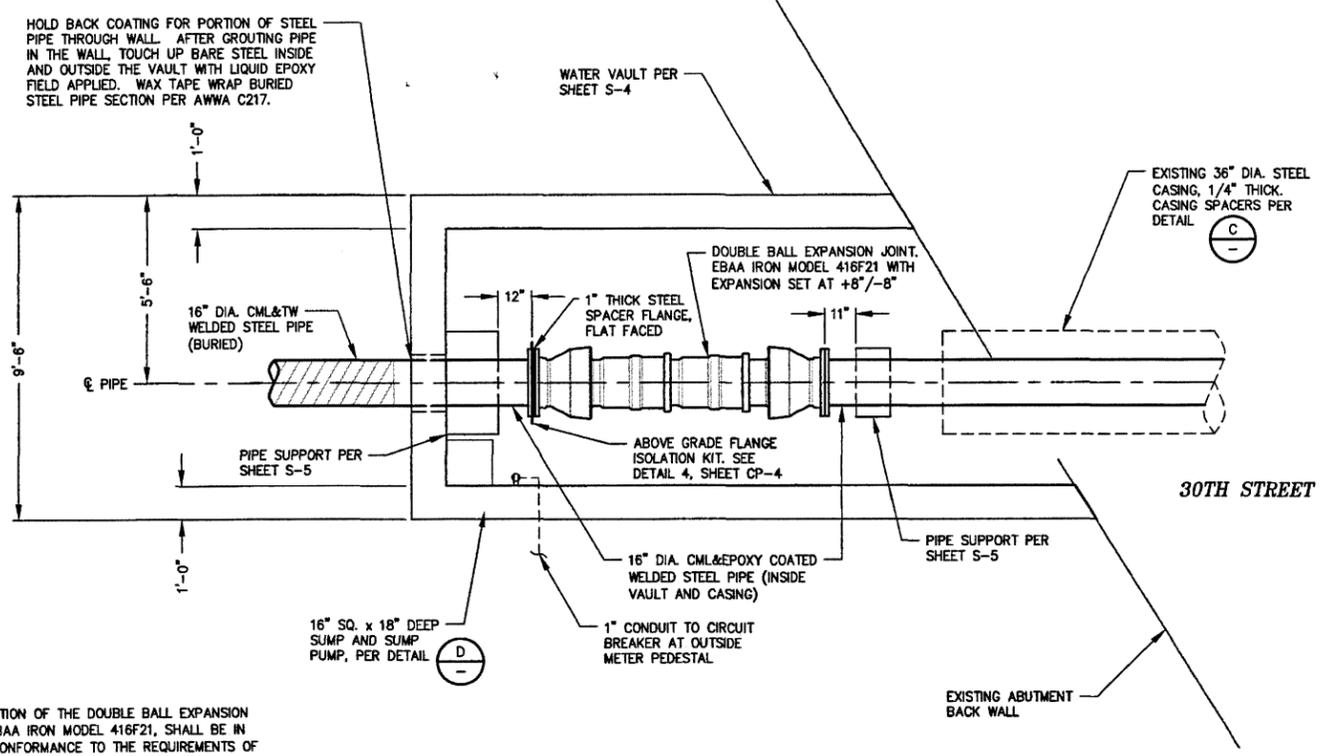
DEXTER WILSON ENGINEERING, INC.
 CONSULTING ENGINEERS
 2234 FARADAY AVENUE
 CARLSBAD, CA 92008
 (760) 438-4422



\\ARTIC\DWG\569137\CALTRANS_M-1_30THBRIDGE_PLAN_CIVIL.DWG 03-16-17 11:48:44 LAYOUT: LAYOUT

PERMIT NUMBER CO SD RTE 94 PM 2.5
 AS-BUILT PLANS FOR ROADWAY
 GEOMETRIC AND ABOVE GROUND
 FEATURES
 STATE REPRESENTATIVE _____ DATE _____

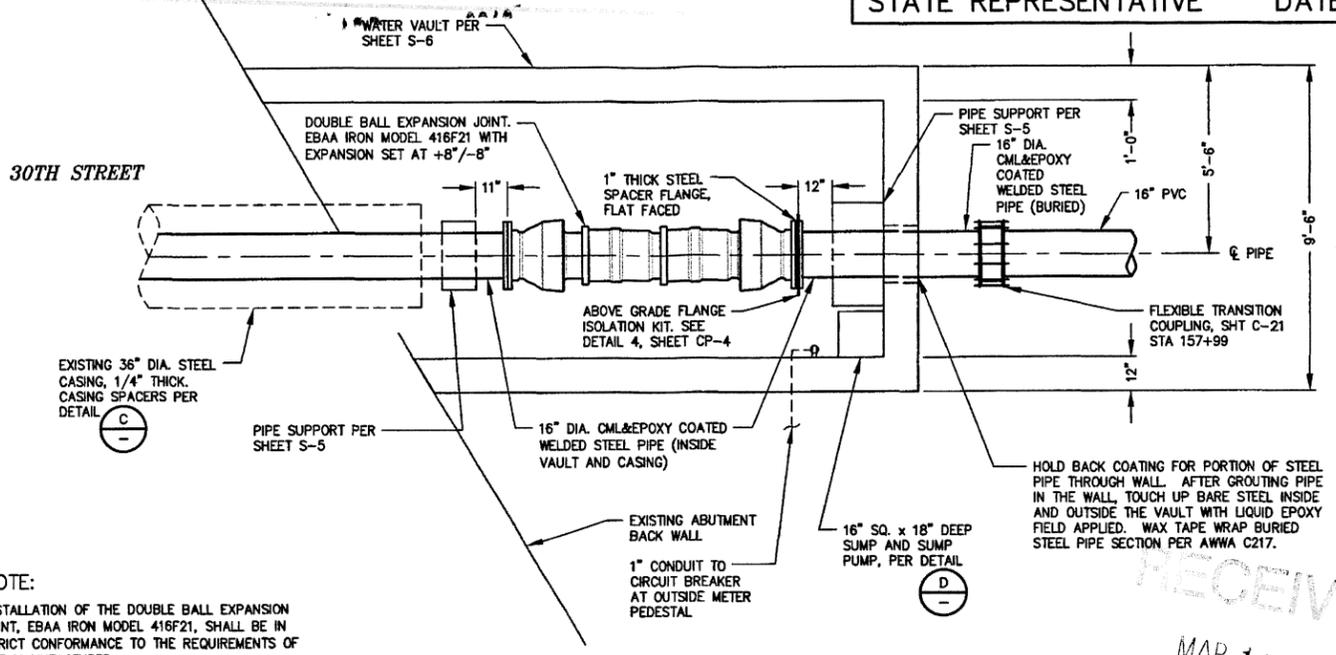
116NUB0163
 MAR 23 2017



NOTE:
 INSTALLATION OF THE DOUBLE BALL EXPANSION JOINT, EBAA IRON MODEL 416F21, SHALL BE IN STRICT CONFORMANCE TO THE REQUIREMENTS OF THE MANUFACTURER

WATERLINE VAULT AT ABUTMENT 1
 MECHANICAL PLAN

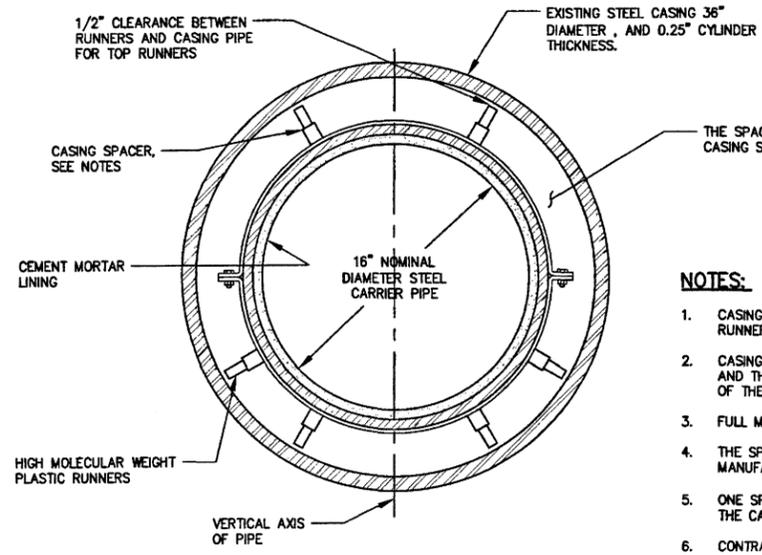
SCALE: 3/8" = 1'-0"



NOTE:
 INSTALLATION OF THE DOUBLE BALL EXPANSION JOINT, EBAA IRON MODEL 416F21, SHALL BE IN STRICT CONFORMANCE TO THE REQUIREMENTS OF THE MANUFACTURER

WATERLINE VAULT AT ABUTMENT 5
 MECHANICAL PLAN

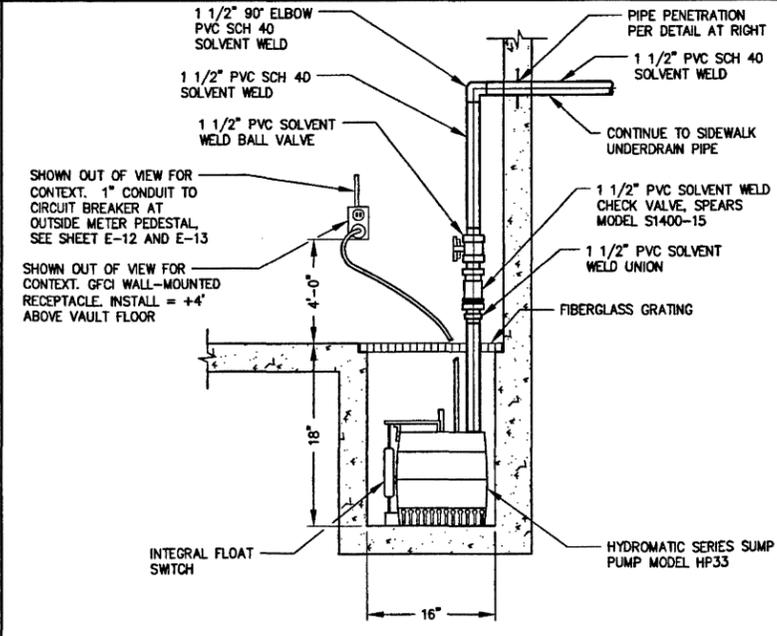
SCALE: 3/8" = 1'-0"



- NOTES:
- CASING SPACERS SHALL BE BOLTED AROUND THE PIPE SO THAT THE PLASTIC RUNNERS ARE LOCATED SYMMETRICALLY ABOUT THE VERTICAL AXIS OF PIPE.
 - CASING SPACER SUPPLIER SHALL VERIFY THE INSIDE DIAMETER OF THE CASING PIPE AND THE OUTSIDE CYLINDER DIAMETER OF THE CARRIER PIPE PRIOR TO FABRICATION OF THE CASING SPACERS.
 - FULL METALLIC ISOLATION BETWEEN THE CARRIER PIPE AND THE CASING IS REQUIRED.
 - THE SPACING OF THE CASING SPACERS SHALL BE PER THE REQUIREMENTS OF THE MANUFACTURER. MAXIMUM SPACING FOR CASING SPACERS IS 8 FEET ON CENTER.
 - ONE SPACER SHALL BE PLACED NOT MORE THAN ONE (1) FOOT FROM EACH END OF THE CASING.
 - CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL A CASING SPACER LAYOUT SCHEDULE FOR 16" WATER LINE WITHIN THE BRIDGE INDICATING THE NUMBER AND SPACING OF CASING SPACERS.
 - CASING SPACERS SHALL BE CENTER RESTRAINED, 2" WIDE BY 11" LONG RUNNERS (MIN.) AND HAVE BEVELED BOTTOM EDGES TO FACILITATE SLIDING OVER UNEVEN SURFACES. MODEL CSS BY CCI PIPELINE SYSTEMS, OR APPROVED EQUAL.

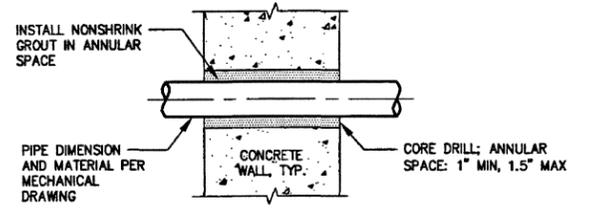
CASING SPACER DETAIL

NO SCALE



SUMP AND PUMP

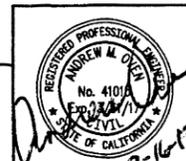
NO SCALE



WALL PENETRATION DETAIL

NO SCALE

DEXTER WILSON ENGINEERING, INC.
 CONSULTING ENGINEERS
 2234 FARADAY AVENUE
 CARLSBAD, CA 92008
 (760) 438-4422



30TH STREET PIPELINE REPLACEMENT
 30TH STREET BRIDGE
 WATERLINE VAULTS AND DETAILS 2

CITY OF SAN DIEGO, CALIFORNIA
 PUBLIC WORKS DEPARTMENT
 SHEET 87 OF 108 SHEETS

APPROVED FOR CITY ENGINEER SHEILA BOSE PRINT NAME	DATE	DATE	DATE	DATE	DATE
DESCRIPTION	BY	APPROVED	DATE	FILED	
ORIGINAL	DWEI				

WATER S-12010
 SEWER -
 SUBMITTED BY: JONG CHOI
 PROJECT MANAGER
 CHECKED BY: JENNY JARRELL
 PROJECT ENGINEER
 SEE SHEETS
 CCS27 COORDINATE
 SEE SHEETS
 CCS83 COORDINATE

CONTRACTOR: _____ DATE STARTED: _____
 INSPECTOR: _____ DATE COMPLETED: _____

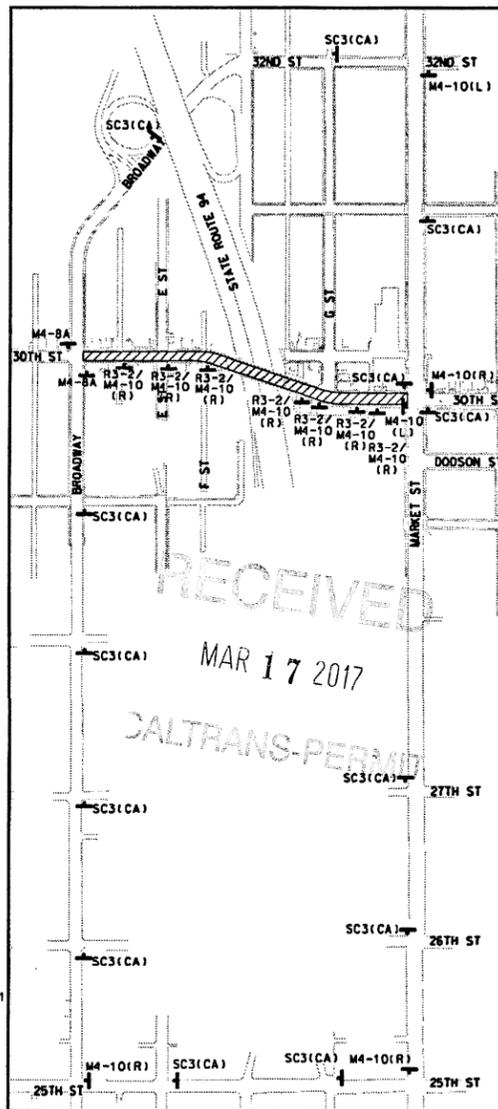
38145-87-D
 982 | Page

ARTICLE 506.37 CALTRANS M2 30TH BRIDGE PLAN MECH.DWG 03-16-17 11:48:41 LAYOUT: LAYOUT

WORK HOURS 9:00 PM TO 5:00 AM
 *NIGHT WORK

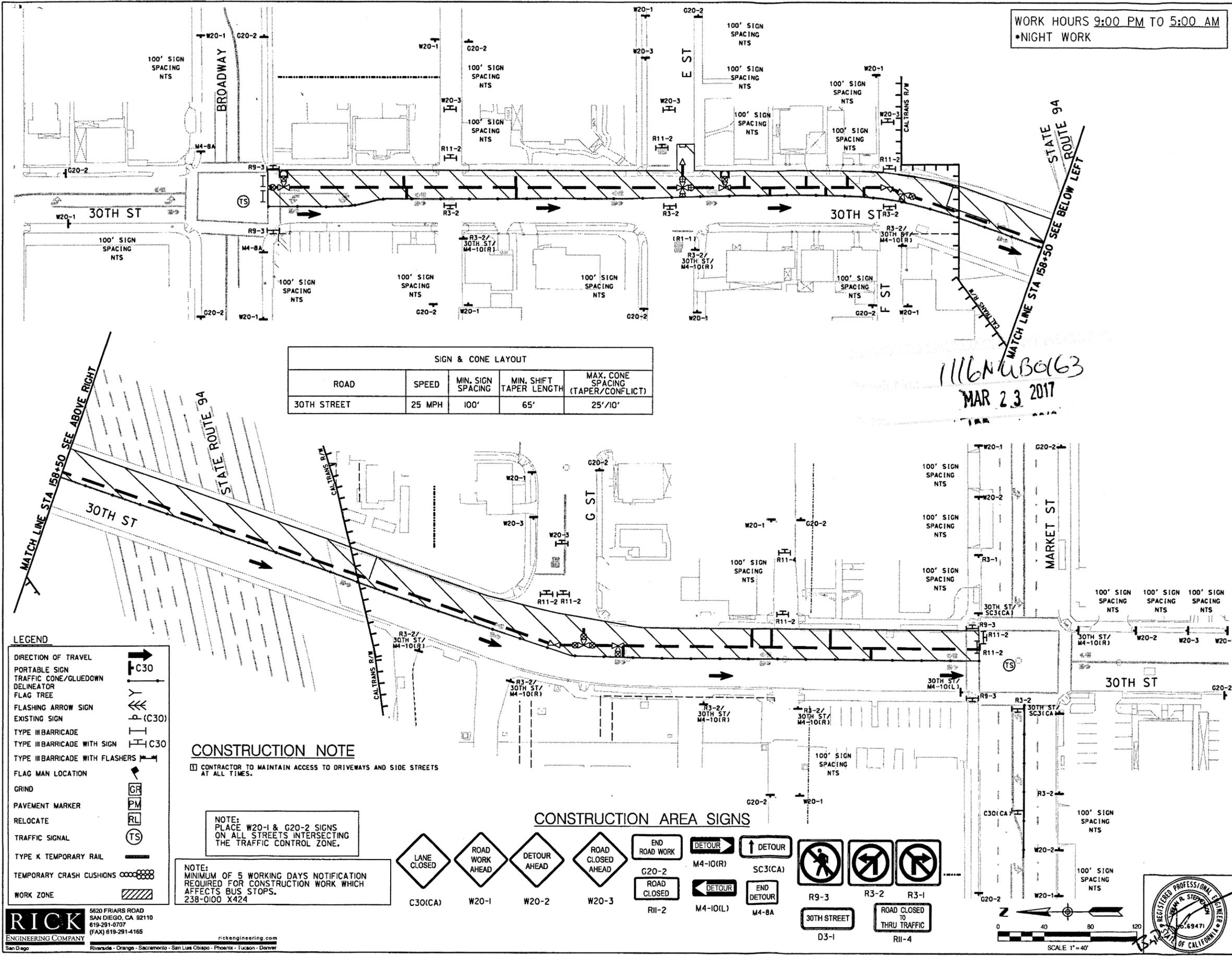
PERMIT NUMBER CO SD RTE 94 PM 2.5
 AS-BUILT PLANS FOR ROADWAY
 GEOMETRIC AND ABOVE GROUND
 FEATURES

STATE REPRESENTATIVE _____ DATE _____



SIGN & CONE LAYOUT				
ROAD	SPEED	MIN. SIGN SPACING	MIN. SHIFT TAPER LENGTH	MAX. CONE SPACING (TAPER/CONFLICT)
30TH STREET	25 MPH	100'	65'	25'/10'

1116 N 30163
 MAR 23 2017



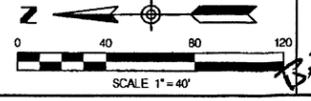
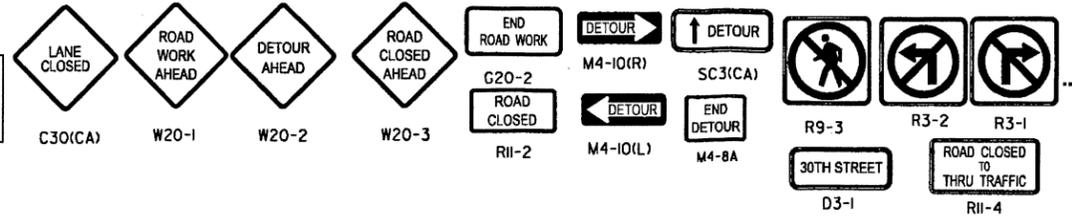
- LEGEND**
- DIRECTION OF TRAVEL
 - PORTABLE SIGN
 - TRAFFIC CONE/GUARDRAIL
 - DELINEATOR
 - FLAG TREE
 - FLASHING ARROW SIGN
 - EXISTING SIGN
 - TYPE III BARRICADE
 - TYPE III BARRICADE WITH SIGN
 - TYPE III BARRICADE WITH FLASHERS
 - FLAG MAN LOCATION
 - GRIND
 - PAVEMENT MARKER
 - RELOCATE
 - TRAFFIC SIGNAL
 - TYPE K TEMPORARY RAIL
 - TEMPORARY CRASH CUSHIONS
 - WORK ZONE

CONSTRUCTION NOTE
 CONTRACTOR TO MAINTAIN ACCESS TO DRIVEWAYS AND SIDE STREETS AT ALL TIMES.

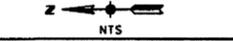
NOTE:
 PLACE W20-1 & G20-2 SIGNS ON ALL STREETS INTERSECTING THE TRAFFIC CONTROL ZONE.

NOTE:
 MINIMUM OF 5 WORKING DAYS NOTIFICATION REQUIRED FOR CONSTRUCTION WORK WHICH AFFECTS BUS STOPS.
 238-0100 X424

CONSTRUCTION AREA SIGNS



DETOUR PLAN



T-46

**30TH STREET PIPELINE REPLACEMENT
 30TH STREET TRAFFIC CONTROL**

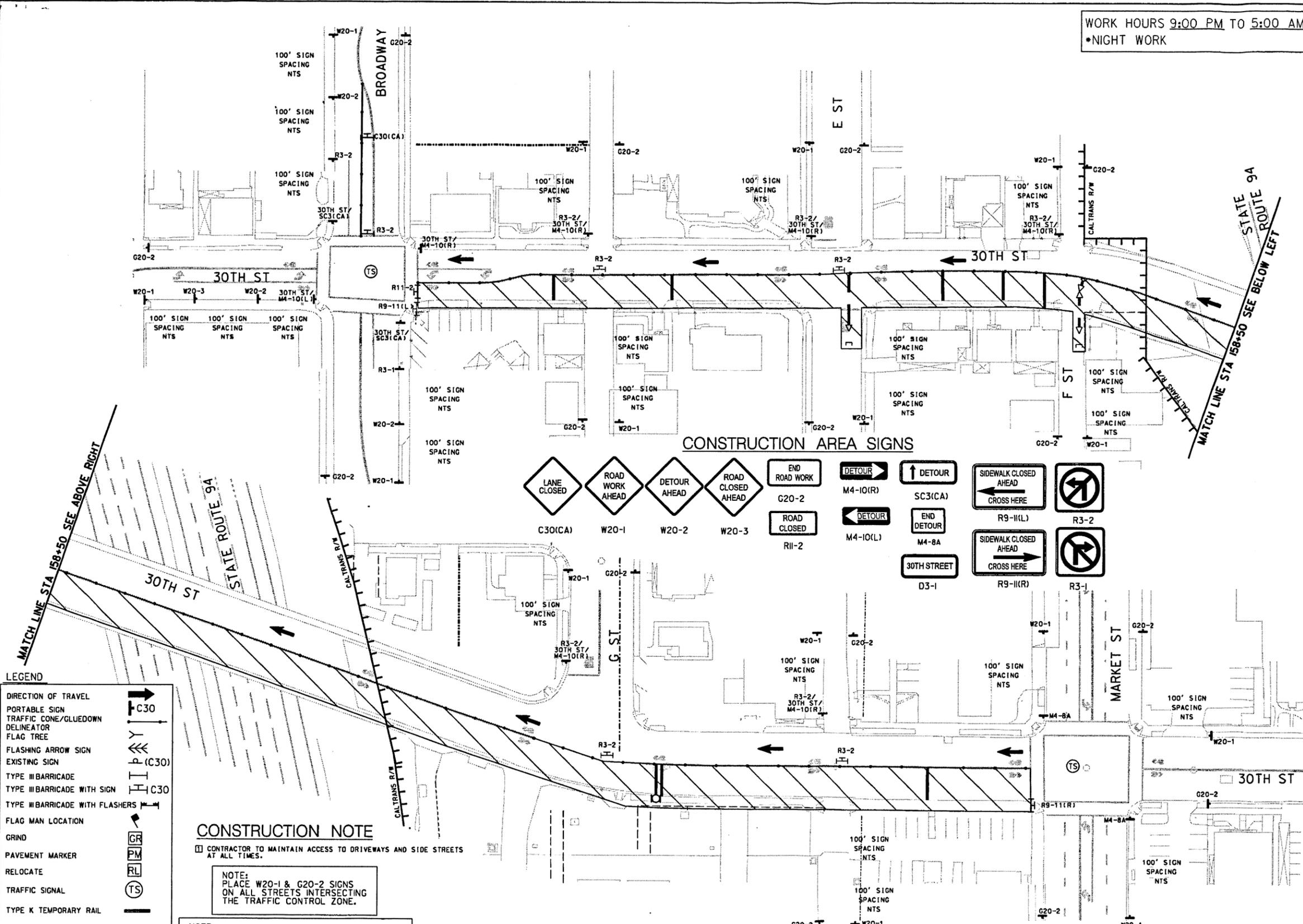
CITY OF SAN DIEGO, CALIFORNIA PUBLIC WORKS DEPARTMENT SHEET T460 T62 SHEETS		WATER WBS S-2010 SEWER WBS
APPROVED FOR CITY ENGINEER AHMED ABURHAMAH DATE	DATE	PROJECT MANAGER JESUS CRUZ
DESCRIPTION ORIGINAL	BY REC	PROJECT ENGINEER BRIAN R. STEPHENSON
APPROVED DATE	FILMED	198-1725 CCS27 COORDINATE
CONTRACTOR		1838-6285 CCS83 COORDINATE
INSPECTOR	DATE STARTED	38145-T46-D
	DATE COMPLETED	

RICK ENGINEERING COMPANY
 5620 FRIARS ROAD
 SAN DIEGO, CA 92110
 619-291-0707
 (FAX) 619-291-4165
 rickengineering.com
 San Diego Riverside - Orange - Sacramento - San Luis Obispo - Phoenix - Tucson - Denver

WORK HOURS 9:00 PM TO 5:00 AM
 *NIGHT WORK

PERMIT NUMBER _____
 CO SD RTE 94 PM 2.5
 AS-BUILT PLANS FOR ROADWAY
 GEOMETRIC AND ABOVE GROUND
 FEATURES

STATE REPRESENTATIVE _____ DATE _____



- LEGEND**
- DIRECTION OF TRAVEL →
 - PORTABLE SIGN → C30
 - TRAFFIC CONE/GLUEDOWN → Y
 - DELINEATOR → Y
 - FLAG TREE → Y
 - FLASHING ARROW SIGN → Y
 - EXISTING SIGN → P (C30)
 - TYPE III BARRICADE → H
 - TYPE III BARRICADE WITH SIGN → H C30
 - TYPE III BARRICADE WITH FLASHERS → H
 - FLAG MAN LOCATION → M
 - GRIND → GR
 - PAVEMENT MARKER → PM
 - RELOCATE → RL
 - TRAFFIC SIGNAL → TS
 - TYPE K TEMPORARY RAIL → K
 - TEMPORARY CRASH CUSHIONS → C
 - WORK ZONE → Z

CONSTRUCTION NOTE

CONTRACTOR TO MAINTAIN ACCESS TO DRIVEWAYS AND SIDE STREETS AT ALL TIMES.

NOTE: PLACE W20-1 & G20-2 SIGNS ON ALL STREETS INTERSECTING THE TRAFFIC CONTROL ZONE.

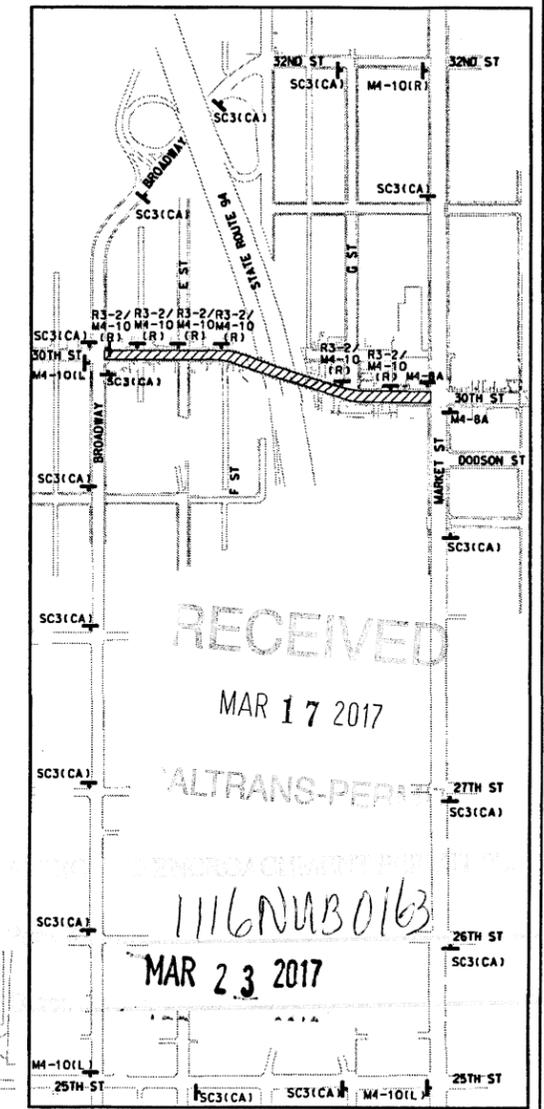
NOTE: MINIMUM OF 5 WORKING DAYS NOTIFICATION REQUIRED FOR CONSTRUCTION WORK WHICH AFFECTS BUS STOPS. 238-0100 X424

CONSTRUCTION AREA SIGNS

LANE CLOSED C30(CA)	ROAD WORK AHEAD W20-1	DETOUR AHEAD W20-2	ROAD CLOSED AHEAD W20-3	END ROAD WORK G20-2	DETOUR M4-10(R)	DETOUR SC3(CA)	SIDEWALK CLOSED AHEAD CROSS HERE R9-11(L)	NO LEFT TURN R3-2
				ROAD CLOSED R11-2	DETOUR M4-10(L)	END DETOUR M4-8A	SIDEWALK CLOSED AHEAD CROSS HERE R9-11(R)	NO LEFT TURN R3-1
					30TH STREET D3-1			

SIGN & CONE LAYOUT

ROAD	SPEED	MIN. SIGN SPACING	MIN. SHIFT TAPER LENGTH	MAX. CONE SPACING (TAPER/CONFLICT)
30TH STREET	25 MPH	100'	65'	25'/10'



DETOUR PLAN

T-47

30TH STREET PIPELINE REPLACEMENT
 30TH STREET TRAFFIC CONTROL

CITY OF SAN DIEGO, CALIFORNIA PUBLIC WORKS DEPARTMENT SHEET T470F T62 SHEETS		WATER WBS S-12010 SEWER WBS
APPROVED FOR CITY ENGINEER AHMED ABURAHMAH	DATE	PROJECT MANAGER BRIAN R. STEPHENSON
DESCRIPTION ORIGINAL	BY REC	PROJECT ENGINEER 198-1725 CCS27 COORDINATE 1838-6285 CCS83 COORDINATE
CONTRACTOR	DATE STARTED	38145-T47-D
INSPECTOR	DATE COMPLETED	

RICK ENGINEERING COMPANY
 5620 FRIARS ROAD
 SAN DIEGO, CA 92110
 619-291-0707
 (FAX) 619-291-4165
 rickengineering.com
 San Diego Riverside - Orange - Sacramento - San Luis Obispo - Phoenix - Tucson - Denver

SCALE 1" = 40'

REGISTERED PROFESSIONAL ENGINEER
 BRIAN R. STEPHENSON
 No. 69471
 STATE OF CALIFORNIA

APPENDIX I
HAZARDOUS LABEL/FORMS

**HAZARDOUS
WASTE**

**STATE AND FEDERAL LAW PROHIBITS IMPROPER DISPOSAL
IF FOUND, CONTACT THE NEAREST POLICE, OR PUBLIC SAFETY
AUTHORITY, OR THE U.S. ENVIRONMENTAL PROTECTION AGENCY
OR THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES**

GENERATOR NAME _____

ADDRESS _____ 24 HR. PHONE () _____

CITY _____ STATE _____ ZIP _____

EPA ID NO. _____ MANIFEST DOCUMENT NO. _____

EPA WASTE NO. _____ CA WASTE NO. _____ ACCUMULATION START DATE _____ / ____ / ____

CONTENTS, COMPOSITION _____

PROPER DOT SHIPPING NAME _____

TECHNICAL NAME (S) _____

UNNA NO. WITH PREFIX _____

PHYSICAL STATE HAZARDOUS PROPERTIES FLAMMABLE TOXIC
 SOLID LIQUID CORROSIVE REACTIVE OTHER _____

HANDLE WITH CARE!
CONTAINS HAZARDOUS OR TOXIC WASTES

INCIDENT/RELEASE ASSESSMENT FORM ¹

If you have an emergency, Call 911

Handlers of hazardous materials are required to report releases. The following is a tool to be used for assessing if a release is reportable. Additionally, a non-reportable release incident form is provided to document why a release is not reported (see back).

Questions for Incident Assessment:

	YES	NO
1. Was anyone killed or injured, or did they require medical care or admitted to a hospital for observation?	<input type="checkbox"/>	<input type="checkbox"/>
2. Did anyone, other than employees in the immediate area of the release, evacuate?	<input type="checkbox"/>	<input type="checkbox"/>
3. Did the release cause off-site damage to public or private property?	<input type="checkbox"/>	<input type="checkbox"/>
4. Is the release greater than or equal to a reportable quantity (RQ)?	<input type="checkbox"/>	<input type="checkbox"/>
5. Was there an uncontrolled or unpermitted release to the air?	<input type="checkbox"/>	<input type="checkbox"/>
6. Did an uncontrolled or unpermitted release escape secondary containment, or extend into any sewers, storm water conveyance systems, utility vaults and conduits, wetlands, waterways, public roads, or off site?	<input type="checkbox"/>	<input type="checkbox"/>
7. Will control, containment, decontamination, and/or clean up require the assistance of federal, state, county, or municipal response elements?	<input type="checkbox"/>	<input type="checkbox"/>
8. Was the release or threatened release involving an unknown material or contains an unknown hazardous constituent?	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the incident a threatened release (a condition creating a substantial probability of harm that requires immediate action to prevent, reduce, or mitigate damages to persons, property, or the environment)?	<input type="checkbox"/>	<input type="checkbox"/>
10. Is there an increased potential for secondary effects including fire, explosion, line rupture, equipment failure, or other outcomes that may endanger or cause exposure to employees, the general public, or the environment?	<input type="checkbox"/>	<input type="checkbox"/>

If the answer is YES to any of the above questions – report the release to the California Office of Emergency Services at 800-852-7550 and the local CUPA daytime: (619) 338-2284, after hours: (858) 565-5255. Note: other state and federal agencies may require notification depending on the circumstances.

Call 911 in an emergency

If all answers are NO, complete a Non Reportable Release Incident Form (page 2 of 2) and keep readily available. Documenting why a “no” response was made to each question will serve useful in the event questions are asked in the future, and to justify not reporting to an outside regulatory agency.

If in doubt, report the release.

¹ This document is a guide for accessing when hazardous materials release reporting is required by Chapter 6.95 of the California Health and Safety Code. It does not replace good judgment, Chapter 6.95, or other state or federal release reporting requirements.

NON REPORTABLE RELEASE INCIDENT FORM

1. RELEASE AND RESPONSE DESCRIPTION

Incident # _____

Date/Time Discovered	Date/Time Discharge	Discharge Stopped <input type="checkbox"/> Yes <input type="checkbox"/> No
Incident Date / Time:		
Incident Business / Site Name:		
Incident Address:		
Other Locators (Bldg, Room, Oil Field, Lease, Well #, GIS)		
Please describe the incident and indicate specific causes and area affected. Photos Attached?: <input type="checkbox"/> Yes <input type="checkbox"/> No		
Indicate actions to be taken to prevent similar releases from occurring in the future.		

2. ADMINISTRATIVE INFORMATION

Supervisor in charge at time of incident:	Phone:
Contact Person:	Phone:

3. CHEMICAL INFORMATION

Chemical	Quantity <input type="checkbox"/> GAL <input type="checkbox"/> LBS <input type="checkbox"/> FT ³
Chemical	Quantity <input type="checkbox"/> GAL <input type="checkbox"/> LBS <input type="checkbox"/> FT ³
Chemical	Quantity <input type="checkbox"/> GAL <input type="checkbox"/> LBS <input type="checkbox"/> FT ³
Clean-Up Procedures & Timeline:	
Completed By:	Phone:
Print Name:	Title:

EMERGENCY RELEASE FOLLOW - UP NOTICE REPORTING FORM

A	BUSINESS NAME	FACILITY EMERGENCY CONTACT & PHONE NUMBER () -	
B	INCIDENT DATE MO DAY YR	TIME OES NOTIFIED (use 24 hr time)	OES CONTROL NO.
C	INCIDENT ADDRESS LOCATION	CITY / COMMUNITY	COUNTY ZIP
D	CHEMICAL OR TRADE NAME (print or type)		CAS Number
D	CHECK IF CHEMICAL IS LISTED IN 40 CFR 355, APPENDIX A <input type="checkbox"/>	CHECK IF RELEASE REQUIRES NOTIFICATION UNDER 42 U.S.C. Section 9603 (a) <input type="checkbox"/>	
D	PHYSICAL STATE CONTAINED <input type="checkbox"/> SOLID <input type="checkbox"/> LIQUID <input type="checkbox"/> GAS	PHYSICAL STATE RELEASED <input type="checkbox"/> SOLID <input type="checkbox"/> LIQUID <input type="checkbox"/> GAS	QUANTITY RELEASED
D	ENVIRONMENTAL CONTAMINATION <input type="checkbox"/> AIR <input type="checkbox"/> WATER <input type="checkbox"/> GROUND <input type="checkbox"/> OTHER	TIME OF RELEASE	DURATION OF RELEASE — DAYS — HOURS — MINUTES
E	ACTIONS TAKEN		
F	KNOWN OR ANTICIPATED HEALTH EFFECTS (Use the comments section for addition information)		
	<input type="checkbox"/> ACUTE OR IMMEDIATE (explain) _____		
	<input type="checkbox"/> CHRONIC OR DELAYED (explain) _____		
	<input type="checkbox"/> NOTKNOWN (explain) _____		
G	ADVICE REGARDING MEDICAL ATTENTION NECESSARY FOR EXPOSED INDIVIDUALS		
H	COMMENTS (INDICATE SECTION (A - G) AND ITEM WITH COMMENTS OR ADDITIONAL INFORMATION)		
I	CERTIFICATION: I certify under penalty of law that I have personally examined and I am familiar with the information submitted and believe the submitted information is true, accurate, and complete.		
	REPORTING FACILITY REPRESENTATIVE (print or type) _____		
	SIGNATURE OF REPORTING FACILITY REPRESENTATIVE _____		DATE: _____

EMERGENCY RELEASE FOLLOW-UP NOTICE REPORTING FORM INSTRUCTIONS

GENERAL INFORMATION:

Chapter 6.95 of Division 20 of the California Health and Safety Code requires that written emergency release follow-up notices prepared pursuant to 42 U.S.C. § 11004, be submitted using this reporting form. Non-permitted releases of reportable quantities of Extremely Hazardous Substances (listed in 40 CFR 355, appendix A) or of chemicals that require release reporting under section 103(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 [42 U.S.C. § 9603(a)] must be reported on the form, as soon as practicable, but no later than 30 days, following a release. The written follow-up report is required in addition to the verbal notification.

BASIC INSTRUCTIONS:

- The form, when filled out, reports follow-up information required by 42 U.S.C § 11004. Ensure that all information requested by the form is provided as completely as possible.
- If the incident involves reportable releases of more than one chemical, prepare one report form for each chemical released.
- If the incident involves a series of separate releases of chemical(s) at different times, the releases should be reported on separate reporting forms.

SPECIFIC INSTRUCTIONS:

Block A: Enter the name of the business and the name and phone number of a contact person who can provide detailed facility information concerning the release.

Block B: Enter the date of the incident and the time that verbal notification was made to OES. The OES control number is provided to the caller by OES at the time verbal notification is made. Enter this control number in the space provided.

Block C: Provide information pertaining to the location where the release occurred. Include the street address, the city or community, the county and the zip code.

Block D: Provide information concerning the specific chemical that was released. Include the chemical or trade name and the Chemical Abstract Service (CAS) number. Check all categories that apply. Provide best available information on quantity, time and duration of the release.

Block E: Indicate all actions taken to respond to and contain the release as specified in 42 U.S.C. § 11004(c).

Block F: Check the categories that apply to the health effects that occurred or could result from the release. Provide an explanation or description of the effects in the space provided. Use Block H for additional comments/information if necessary to meet requirements specified in 42 U.S.C. § 11004(c).

Block G: Include information on the type of medical attention required for exposure to the chemical released. Indicate when and how this information was made available to individuals exposed and to medical personnel, if appropriate for the incident, as specified in 42 U.S.C. § 11004(c).

Block H: List any additional pertinent information.

Block I: Print or type the name of the facility representative submitting the report. Include the official signature and the date that the form was prepared.

MAIL THE COMPLETED REPORT TO:

**State Emergency Response Commission (SERC)
Attn: Section 304 Reports
Hazardous Materials Unit
3650 Schriever Avenue
Mather, CA 95655**

NOTE: Authority cited: Sections 25503, 25503.1 and 25507.1, Health and Safety Code. Reference: Sections 25503(b)(4), 25503.1, 25507.1, 25518 and 25520, Health and Safety Code.

APPENDIX J

SAMPLE ARCHAEOLOGY INVOICE

(FOR ARCHAEOLOGY ONLY)

Company Name

Address, telephone, fax

Date: Insert Date

To: Name of Resident Engineer
City of San Diego
Field Engineering Division
9485 Aero Drive
San Diego, CA 92123-1801

Project Name: Insert Project Name

SAP Number (WBS/IO/CC): Insert SAP Number

Drawing Number: Insert Drawing Number

Invoice period: Insert Date to Insert Date

Work Completed: Bid item Number – Description of Bid Item – Quantity – Unit Price– Amount

Detailed summary of work completed under this bid item: Insert detailed description of Work related to Archaeology Monitoring Bid item. See Note 1 below.

Summary of charges:

Description of Services	Name	Start Date	End Date	Total Hours	Hourly Rate	Amount
Field Archaeologist	Joe Smith	8/29/2011	9/2/2011	40	\$84	\$3,360
Laboratory Assistant	Jane Doe	8/29/2011	9/2/2011	2	\$30	\$60
Subtotal						\$3,420

Work Completed: Bid item Number – Description of Bid Item – Quantity – Unit Price– Amount

Detailed summary of work completed under this bid item: Insert detailed description of Work related to Archaeology Curation/Discovery Bid item. See Note 2 below.

Summary of charges:

Description of Services	Where work occurred (onsite vs offsite/lab)	Name	Start Date	End Date	Total Hours	Hourly Rate	Amount

Field Archaeologist		Joe Smith	8/29/2011	9/2/2011	40	\$84	\$3,360
Laboratory Assistant		Jane Doe	8/29/2011	9/2/2011	2	\$30	\$60
Subtotal							\$3,420

Total this invoice: \$ _____

Total invoiced to date: \$ _____

SAMPLE

Note 1:

For monitoring related bid items or work please include summary of construction work that was monitored from Station to Station, Native American monitors present, MMC coordination, status and nature of monitoring and if any discoveries were made.

Note 2:

For curation/discovery related bid items or work completed as part of a discovery and curation process, the PI must provide a response to the following questions along with the invoice:

1. Preliminary results of testing including tentative recommendations regarding eligibility for listing in the California Register of Historical Resources (California Register).
 - a. Please briefly describe your application (consideration) of all four California Register criteria.
 - b. If the resource is eligible under Criterion D, please define the important information that may be present.
 - c. Were specialized studies performed? How many personnel were required? How many Native American monitors were present?
 - d. What is the age of the resource?
 - e. Please define types of artifacts to be collected and curated, including quantity of boxes to be submitted to the San Diego Archaeological Center (SDAC). How many personnel were required? How many Native American monitors were present?
2. Preliminary results of data recovery and a definition of the size of the representative sample.
 - a. Were specialized studies performed? Please define types of artifacts to be collected and curated, including quantity of boxes to be submitted to the SDAC. How many personnel were required? How many Native American monitors were present?
3. What resources were discovered during monitoring?
4. What is the landform context and what is the integrity of the resources?
5. What additional studies are necessary?
6. Based on application of the California Register criteria, what is the significance of the resources?
 - a. If the resource is eligible for the California Register, can the resource be avoided by construction?
 - b. If not, what treatment (mitigation) measures are proposed? Please define data to be recovered (if necessary) and what material will be submitted to the SDAC for curation. Are any specialized studies proposed?

(After the first invoice, not all the above information needs to be re-stated, just revise as applicable).

APPENDIX K

SAMPLE OF PUBLIC NOTICE



CONSTRUCTION NOTICE

PROJECT TITLE

Work on your street will begin within one week to replace the existing water mains servicing your community.

The work will consist of:

- Saw-cutting and trench work on Ingulf Street from Morena Boulevard to Galveston Street to install new water mains, water laterals and fire hydrants.
- Streets where trenching takes place will be resurfaced and curb ramps will be upgraded to facilitate access for persons with disabilities where required.
- This work is anticipated to be complete in your community by December 2016.

How your neighborhood may be impacted:

- Water service to some properties during construction will be provided by a two-inch highline pipe that will run along the curb. To report a highline leak call 619-515-3525.
- Temporary water service disruptions are planned. If planned disruptions impact your property, you will receive advance notice.
- Parking restrictions will exist because of the presence of construction equipment and materials.
- "No Parking" signs will be displayed 72 hours in advance of the work.
- Cars parked in violation of signs will be TOWED.

Hours and Days of Operation:

Monday through Friday X:XX AM to X:XX PM.

City of San Diego Contractor:

Company Name, XXX-XXX-XXXX



CONSTRUCTION NOTICE

PROJECT TITLE

Work on your street will begin within one week to replace the existing water mains servicing your community.

The work will consist of:

- Saw-cutting and trench work on Ingulf Street from Morena Boulevard to Galveston Street to install new water mains, water laterals and fire hydrants.
- Streets where trenching takes place will be resurfaced and curb ramps will be upgraded to facilitate access for persons with disabilities where required.
- This work is anticipated to be complete in your community by December 2016.

How your neighborhood may be impacted:

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- Temporary water service disruptions are planned. If planned disruptions impact your property, you will receive advance notice.
- Parking restrictions will exist because of the presence of construction equipment and materials.
- "No Parking" signs will be displayed 72 hours in advance of the work.
- Cars parked in violation of signs will be TOWED.

Hours and Days of Operation:

Monday through Friday X:XX AM to X:XX PM.

City of San Diego Contractor:

Company Name, XXX-XXX-XXXX

APPENDIX L

MTS PERMIT/AGREEMENT

1255 Imperial Avenue, Suite 1000
San Diego, CA 92101-7490
(619) 231-1466 • FAX (619) 234-3407

July 27, 2016

MTS File: EL-2.7-16-PR1

Rick Engineering Company
5620 Friars Road
San Diego, CA 92110-2596

Attn: Nick Dorner

Subject: PLAN REVIEW LETTER OF ACCEPTANCE – 30th Street Pipeline
Replacement (at Commercial Street)

This letter is acknowledgment of the revised Subject plan sheets 38145-01-D through 38145-T59-D resubmitted by Nick Dorner via email on 7/7/16 and stamped “No Further Exceptions” on 7/19/16.

The plans have been reviewed by MTS in matters relating to the MTS railway right of way facilities and have been determined that the project plans are acceptable **pending the submittal and review of Shoring calculations as well as Traffic control plans.**

Please be advised that this letter of acceptance does not constitute a Right of Entry Permit. Those contracted to construct the project will be responsible to obtain and follow terms of a Right of Entry Permit at the appropriate time.

If you have any further questions, please contact me at (619) 929-3358

Best Regards,



David Berryman
MTS Right of Way Engineer

cc File, Tim Allison (MTS), Monica Coria (MTS)



APPENDIX M

ARCHAEOLOGICAL AND PALEONTOLOGICAL MONITORING LIMITS

Estimated Archaeological Monitoring Limits				
(Includes Main, Laterals and other trenching activities)				
Sheet #	Discipline Code #	Begin Station	End Station	Approximate Length
5	C-1	1+00	5+00	400
6	C-2	5+00	13+00	800
7	C-3	13+00	20+00	700
8	C-4	20+00	28+00	800
9	C-5	28+00	35+00	700
10	C-6	35+00	41+54.73	654.73
11	C-7	49+73.13	61+00	734.44
12	C-8	61+00	61+87.44	87.44
12	C-8	66+96.23	67+60.00	63.77
13	C-9	73+68.44	75+00	131.56
14	C-10	75+00	77+12.11	212.11
17	C-13	102+20.39	103+26.53	106.14
18	C-14	106+35.83	106+70.01	34.18
18	C-14	107+50.80	110+00	249.2
19	C-15	110+00	111+68.98	168.98
20	C-16	124+17.09	127+00	282.91
21	C-17	127+00	127+18.05	18.05
22	C-18	138+15.67	140+07.27	191.6
24	C-20	150+79.54	153+00	220.46
25	C-21	153+00	154+00	100
26	C-22	162+77.62	164+00	122.38
27	C-23	164+00	167+16.31	317.72
28	C-24	174+15.69	174+83.88	68.19
29	C-25	177+00	180+12.64	312.64
31	C-27	1+00	2+99.49	199.49
32	C-28	0+76.85	1+00	23.15
32	C-28	1+50.41	3+44.41	194
34	C-30	14+80.84	20+00	519.16
35	C-31	20+00	21+29.81	129.81
35	C-31	22+03.96	28+00	596.04
37	C-33	35+00	41+49.05	649.05
38	C-34	51+91.53	56+29.89	438.36
39	C-35	1+12.1	1+39.82	22.72
40	C-36	1+00	1+60.01	60.01
40	C-36	2+96.70	3+26.70	30
40	C-36	3+03.04	3+25	21.96
41	C-37	1+27	4+11.66	284.66
42	C-38	1+50	4+05.42	255.42
43	C-39	1+00	1+83.45	83.45
44	C-40	1+23.80	2+30	106.2
45	C-41	1+05	7+00	595
46	C-42	7+00	14+80.55	780.55

Actual limits to be determined by the PI/Monitor(s) prior to construction and shall be consistent with the project's mitigation and monitoring program (MMRP).

Estimated Paleontological Monitoring Limits				
(Includes Main, Laterals and other trenching activities)				
Sheet #	Discipline Code #	Begin Station	End Station	Approximate Length
5	C-1	3+31.29	5+00	168.71
6	C-2	5+00	6+04.55	104.55
10	C-6	40+64.62	41+05.34	40.73
11	C-7	49+73.13	61+00	734.44
12	C-8	61+00	61+87.44	87.44
12	C-8	66+96.23	67+60	63.77
17	C-13	102+33.34	103+13.51	80.17
18	C-14	107+65.84	110+00	234.16
19	C-15	110+00	111+61.79	161.79
20	C-16	125+25.82	127+00	174.18
21	C-17	127+00	127+18.05	18.05
24	C-20	150+79.54	153+00	220.46
25	C-21	153+00	154+00	100
26	C-22	162+77.62	164+00	122.38
27	C-23	164+00	167+17.72	317.72
28	C-24	174+15.69	174+83.88	68.19
29	C-25	177+00	180+12.64	312.64
31	C-27	1+34.27	2+86.29	151.55
32	C-28	0+76.85	1+00	23.15
32	C-28	1+50.41	3+44.41	194
34	C-30	14+80.84	20+00	519.16
35	C-31	20+00	21+29.91	129.81
35	C-31	22+03.96	28+00	596.04
36	C-32	28+00	30+04.10	204.1
36	C-32	30+22.10	35+00	477.9
37	C-33	35+00	41+49.05	649.05
38	C-34	51+91.53	56+29.89	438.36
39	C-35	1+12.1	1+39.82	22.72
40	C-36	1+00	1+60.01	60.01
40	C-36	2+96.7	3+26.7	30
40	C-36	3+03.04	3+25	21.96
41	C-37	1+27	4+11.66	284.66
43	C-39	1+00	1+83.45	83.45
44	C-40	1+23.80	1+36.28	106.2
44	C-40	2+00	2+30	30
45	C-41	1+05	7+00	595
46	C-42	7+00	14+80.55	780.55

Actual limits to be determined by the PI/Monitor(s) prior to construction and shall be consistent with the project's mitigation and monitoring program (MMRP).

APPENDIX N

ADVANCED METERING INFRASTRUCTURE (AMI) DEVICE PROTECTION

Protecting AMI Devices in Meter Boxes and on Street Lights

The Public Utilities Department (PUD) has begun the installation of the Advanced Metering Infrastructure (AMI) technology as a new tool to enhance water meter reading accuracy and efficiency, customer service and billing, and to be used by individual accounts to better manage the efficient use of water. **All AMI devices shall be protected per Section 5-2, "Protection", of the 2015 Whitebook.**

AMI technology allows water meters to be read electronically rather than through direct visual inspection by PUD field staff. This will assist PUD staff and customers in managing unusual consumption patterns which could indicate leaks or meter tampering on a customer's property.

Three of the main components of an AMI system are the:

- A. Endpoints, see Photo 1:

Photo 1



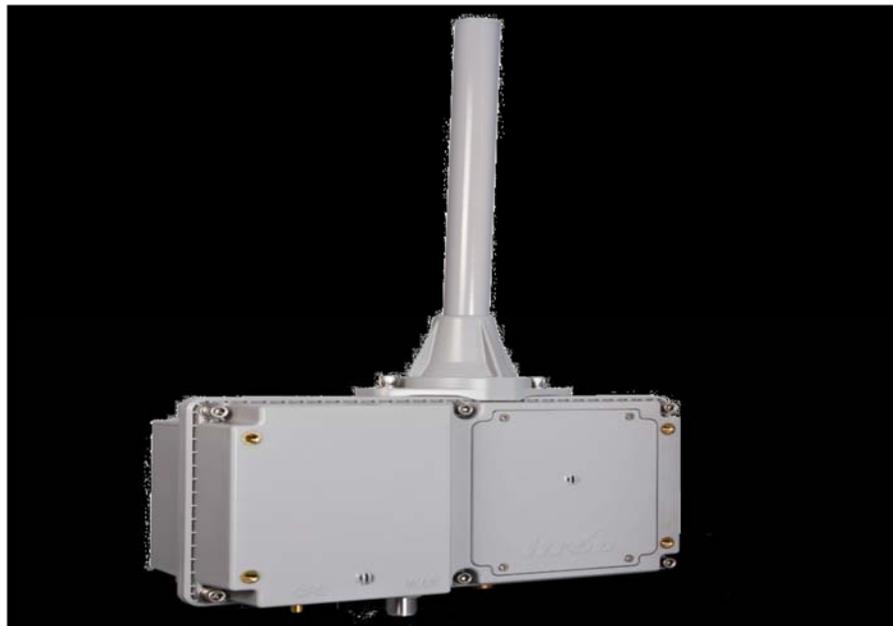
B. AMI Antenna attached to Endpoint (antenna not always required), see Photo 2:

Photo 2



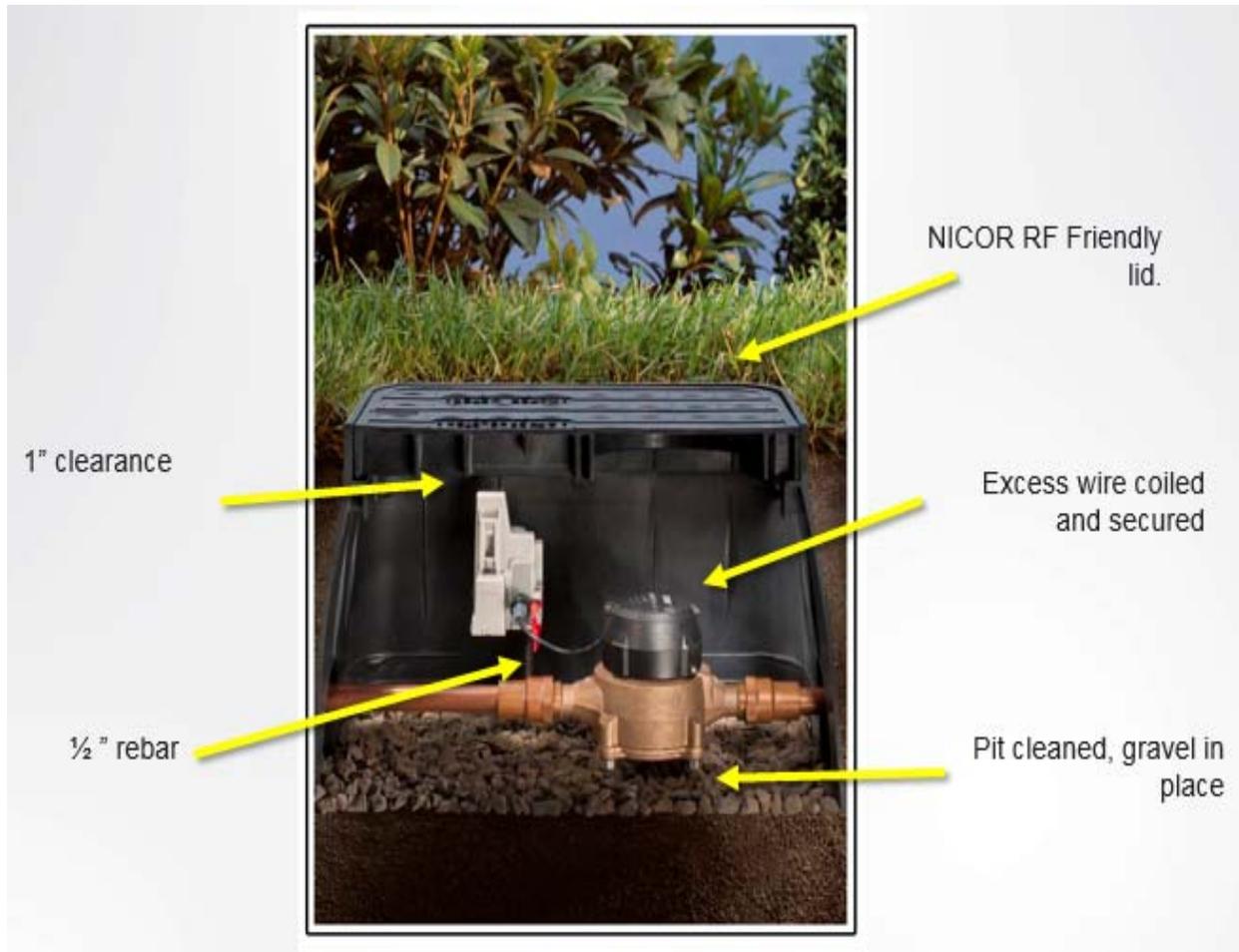
Network Devices, see Photo 3:

Photo 3



AMI endpoints transmit meter information to the AMI system and will soon be on the vast majority of meters in San Diego. These AMI devices provide interval consumption data to the PUD's Customer Support Division. If these devices are damaged or communication is interrupted, this Division will be alerted of the situation. The endpoints are installed in water meter boxes, coffins, and vaults adjacent to the meter. A separate flat round antenna may also be installed through the meter box lid. This antenna is connected to the endpoint via cable. The following proper installation shall be implemented when removing the lid to avoid damaging the antenna, cable, and/or endpoint. Photo 4 below demonstrates a diagram of the connection:

Photo 4



The AMI device ERT/Endpoint/Transmitter shall be positioned and installed as discussed in this Appendix. If the ERT/Endpoint/Transmitter is disturbed, it shall be re-installed and returned to its original installation with the end points pointed upwards as shown below in Photo 5.

The PUD's code compliance staff will issue citations and invoices to you for any damaged AMI devices that are not re-installed as discussed in the Contract Document

Photo 5 below shows a typical installation of an AMI endpoint on a water meter.

Photo 5

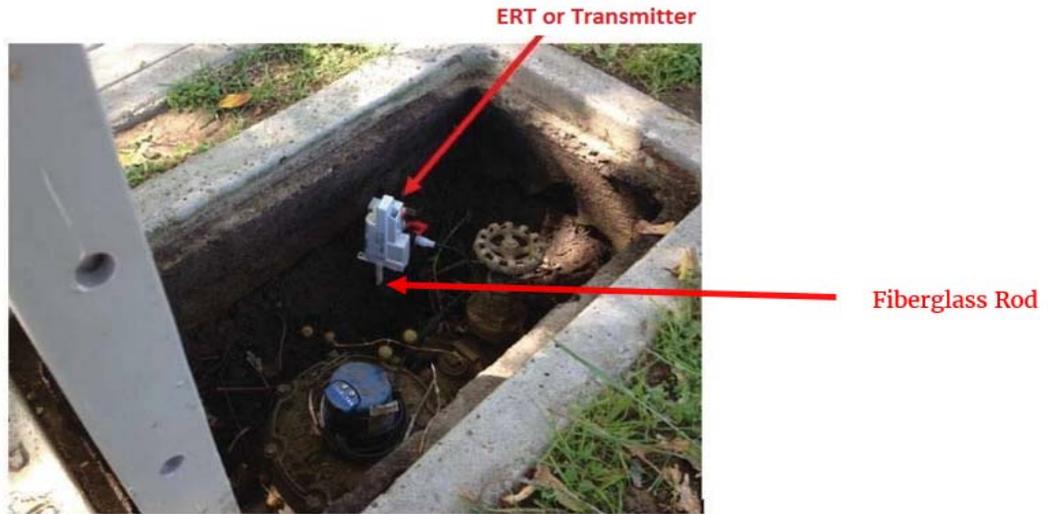


Photo 6 below is an example of disturbance that shall be avoided:

Photo 6



You are responsible when working in and around meter boxes. If you encounter these endpoints, use proper care and do not disconnect them from the registers on top of the water meter. If the lid has an antenna drilled through, do not change or tamper with the lid and inform the Resident Engineer immediately about the location of that lid. Refer to Photo 7 below:

Photo 7



Another component of the AMI system are the Network Devices. The Network Devices are strategically placed units (mainly on street light poles) that collect interval meter reading data from multiple meters for transmission to the Department Control Computer. **If you come across any of these devices on street lights that will be removed or replaced (refer to Photos 8 and 9 below), notify AMI Project Manager Arwa Sayed at (619) 362-0121 immediately.**

Photo 8 shows an installed network device on a street light. On the back of each Network Device is a sticker with contact information. See Photo 9. **Call PUD Water Emergency Repairs at 619-515-3525 if your work will impact these street lights.** These are assets that belong to the City of San Diego and you shall be responsible for any costs of disruption of this network.

Photo 8



Network Device

Photo 9



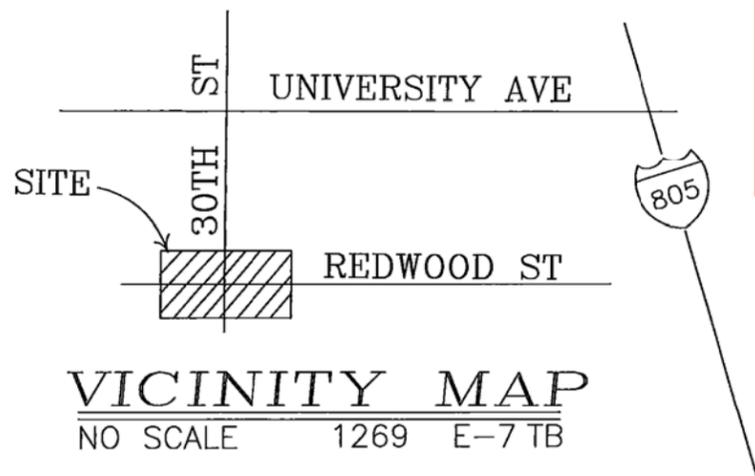
If you encounter any bad installations, disconnected/broken/buried endpoints, or inadvertently damage any AMI devices or cables, notify the Resident Engineer immediately. The Resident Engineer will then immediately contact the AMI Project Manager, Arwa Sayed, at (619) 362-0121.

APPENDIX O
SHUTDOWN WAIVER MAP

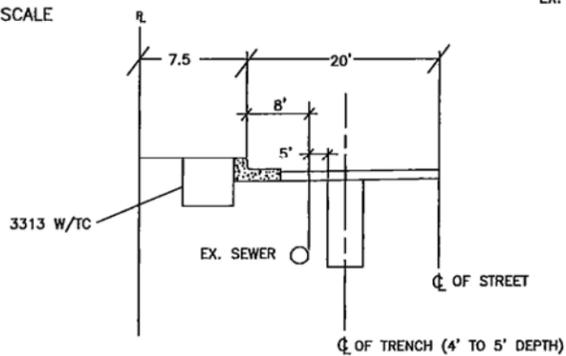
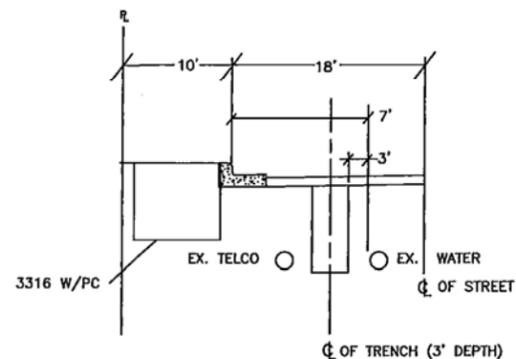
APPENDIX P

REDWOOD AND 30TH STREET SDG&E / CROWN CASTLE PLANNED UTILITY WORK

REDWOOD & 30TH ST. CR OBSTRUCTION

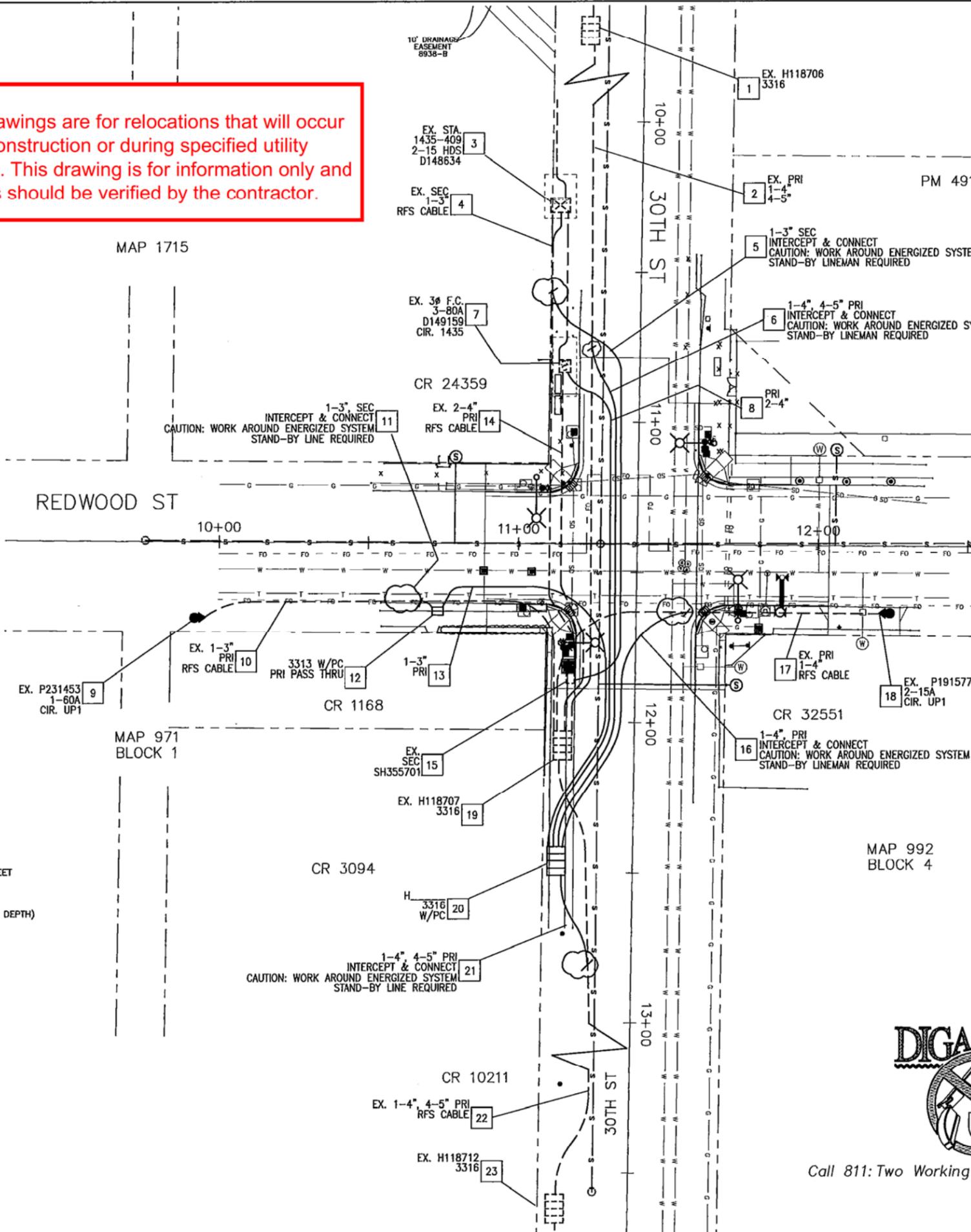


Note:
Utility drawings are for relocations that will occur before construction or during specified utility windows. This drawing is for information only and locations should be verified by the contractor.



NOTES

- ✓ MAINTAIN A MINIMUM OF 5' SEPARATION WHEN PARALLELING WET UTILITIES AND 6" WHEN CROSSING.
 - ✓ CLOUDED AREAS IDENTIFY POINT OF INTERCEPT/RE-ROUTE OF EXISTING UNDERGROUND FACILITIES.
 - ✓ ALL COMMERCIAL INTERCEPT LOCATIONS TO BE WORKED ON DOUBLE TIME.
 - ✓ FINAL STREET REPAIR OF ALL INTERCEPTS RESPONSIBILITY OF CABLE CREW.
 - ✓ CAUTION: ELECTRIC STAND BY LINEMAN REQUIRED FOR ALL WORK AROUND ENERGIZED FACILITIES.
 - ✓ T-TRENCH CONSTRUCTION PER REGIONAL STANDARDS WHEN REQUIRED BY MUNICIPALITY.
 - ✓ ALL QUESTIONS RELATED TO SERVICE TRENCH SHOULD BE DIRECTED TO THE APPROPRIATE LIAISON PLANNER.
- NAME KEENON HOLMES PHONE 858-654-8602



D2464500

SDGE SAN DIEGO GAS & ELECTRIC
CONSTRUCTION ORDER
DESIGN SKETCH

DESIGNED BY SHARON DENKINS
PLOT DATE 10/28/2016
PROJECT NO. 553637-020

CONSTRUCTION ORDER NO. **2464500**

REV/SJ/PF
1 OF 2
3:53pm

858-650-4154

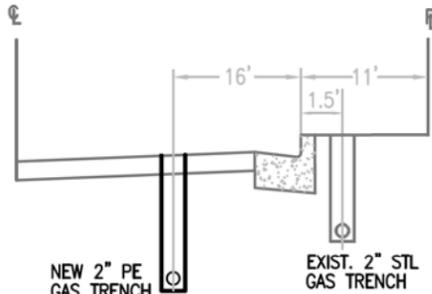


Call 811: Two Working Days Before You Dig!

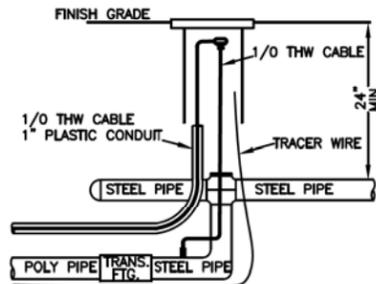
Note:
Utility drawings are for relocations that will occur before construction or during specified utility windows. This drawing is for information only and locations should be verified by the contractor.



VICINITY MAP
NO SCALE TB 1269-E7

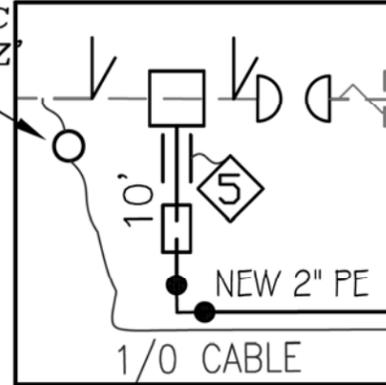


TYPICAL STREET SECTION
NO SCALE REDWOOD ST



CATHODIC DETAIL 'Z'
(NOT TO SCALE)

- 1**
INSTALL:
2" PCF BT
2" STEEL 90° ELBOW
3/4" PUNCH TEE
2" TRANSITION FITTING
2" PE COUPLING
2" PE ELBOW
12" VALVE BOX W/LID
8'-2" PE PIPE

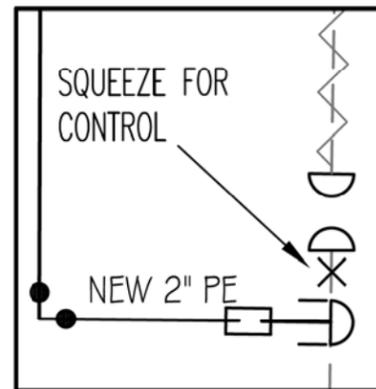


DETAIL 'A'
NOT TO SCALE

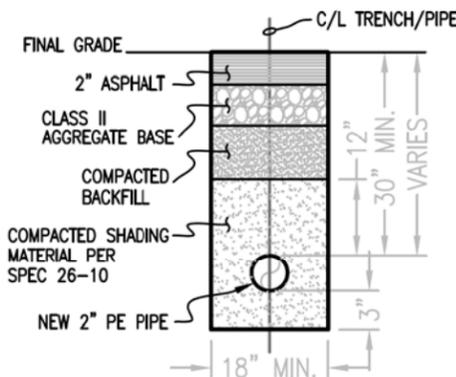


Call 2 Working Days Before You Dig!
1-800-227-2600

- 4**
INSTALL:
220' - 2"PE
155' - 1/0 CABLE
135' - 1"DB CONDUIT
2- 2" POLY VALVES & BOXES
2" PE TEE
2" PE ELBOW
2 - 2"PE CAP
2"x1/2"PE TAPPING TEE

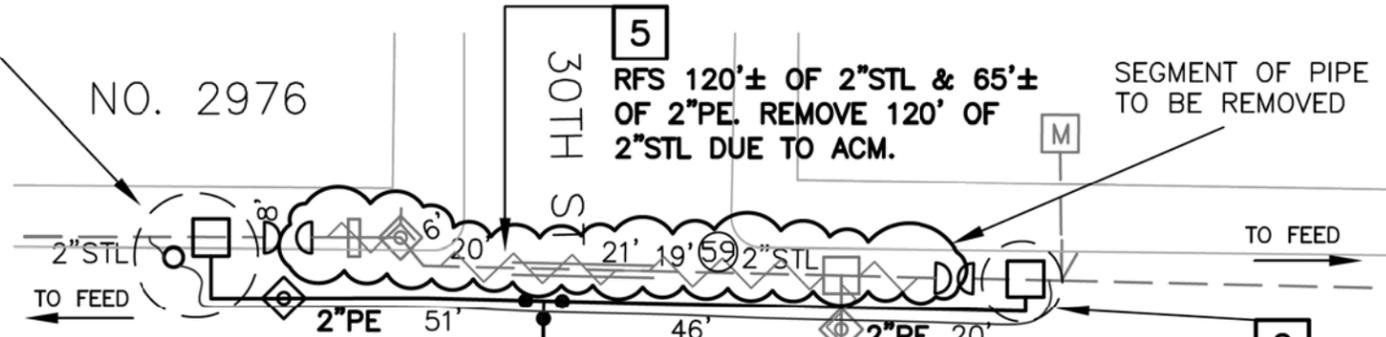


DETAIL 'C'
NOT TO SCALE



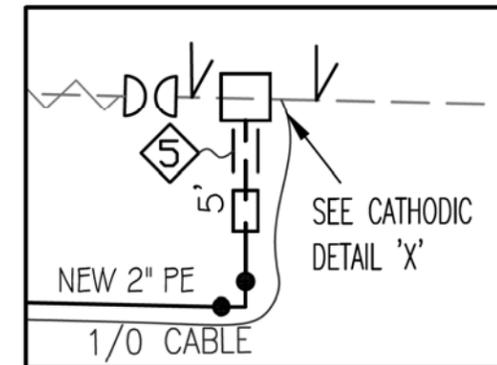
TRENCH DETAIL
PE PIPE - GAS TRENCH ONLY
SEE GAS STANDARDS D7403 & G7409

- 5**
RFS 120'± OF 2"STL & 65'± OF 2"PE. REMOVE 120' OF 2"STL DUE TO ACM.

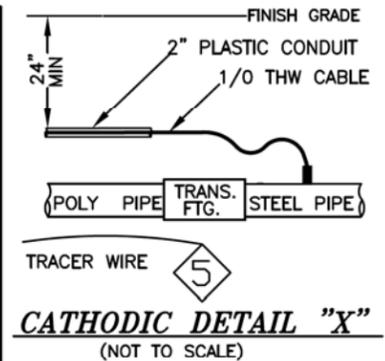


- 2**
INSTALL:
2" PCF BT
2" STEEL 90° ELBOW
3/4" PUNCH TEE
2" TRANSITION FITTING
2" PE ELBOW
2" PE COUPLING
10'-2" PE PIPE
2-2"STL CAPS

- 3**
INSTALL:
2"x2"PE BRANCHING SADDLE
2" PE COUPLING
2-2"PE CAPS
SEE DETAIL 'C'



DETAIL 'B'
NOT TO SCALE



CATHODIC DETAIL 'X'
(NOT TO SCALE)

- FOS/CONTRACTOR TO CONTACT FIELD UTILITY SPECIALIST 2 WORKING DAYS PRIOR TO STARTING JOB. POSITION AND GRADE TO BE SET BY FIELD UTILITY SPECIALIST. CONTACT FIELD UTILITY SPECIALIST FOR ANY DESIGN CHANGES. ASSOCIATE FIELD UTILITY SPECIALIST - MIKE EGAN AT (858)-547-2012.
- FOS TO SCHEDULE PRE-CONSTRUCTION MEETING. ATTENDEES TO INCLUDE, FIELD UTILITY SPECIALIST, PIPELINE OPERATIONS, WELDING INSPECTION AND CATHODIC PROTECTION AS REQUIRED.
- FOS TO CONTACT SDG&E SYSTEM PROTECTION SUPERVISOR, DOUG SYMONDS AT (858) 547-2024, 2 WORKING DAYS PRIOR TO STARTING JOB.
- PURGE GAS SYSTEM IN ACCORDANCE WITH GAS STANDARD D7911 AND G7909.
- TEST NEW 2" P.E. AT 100 PSI FOR 1 HOURS PER GAS STANDARD D7265.
- ABANDONED NATURAL GAS PIPELINES MAY CONTAIN ASBESTOS IN THEIR INSULATING MATERIAL. IF IMPROPERLY HANDLED, THESE ASBESTOS CONTAINING MATERIAL (ACM) COULD BECOME FRIABLE AND THEREFORE HAZARDOUS. SUCH ACM WASTE MUST THEN BE MANAGED, TRANSPORTED AND DISPOSED OF IN ACCORDANCE WITH APPLICABLE SAFETY AND ENVIRONMENTAL LAWS AND REGULATIONS.
- FOR PROCEDURES TO MINIMIZE, IDENTIFY, AND MONITOR INDUCED HIGH VOLTAGE ALTERNATING CURRENT (HVAC) ON PIPELINES FOR THE PURPOSE OF PROVIDING SAFETY FOR COMPANY EMPLOYEES AND THE GENERAL PUBLIC, SEE GAS STANDARD G8037.
- THIS JOB IS IMPACTED BY AB-1937. AFFECTED FACILITIES MUST BE NOTIFIED 3 DAYS PRIOR TO START OF CONSTRUCTION.

ESTIMATED PIPE FOOTAGE	
2" PE MAIN	238'±
ESTIMATED RFS FOOTAGE	
2" STL MAIN	100±
2" PE MAIN	80'±

LEGEND

- (88) YEAR OF EXISTING MAIN OR SERVICE
- (R) RETIRE FROM SERVICE
- (O) MAIN OR SERVICE TO BE OPEN TRENCH
- DESIGN BY LOCATION

BUDGET:		TB: 1269-E7		GAS TECHNICAL SERVICES - MIRAMAR	
DRAWN:		MJE 6/18/15		GAS DISTRIBUTION SYSTEM	
DESIGNED:		SRGO 6/16/15		238' 2"PE REDWOOD ST & 30TH ST	
SIZED BY:				2976 REDWOOD ST	
SYSTEM PROTECTION:				CITY OF SAN DIEGO	
WELDING INSPECTOR:				PROJECT No./DPSS No.	
PIPELINE OPERATIONS:				300000049401	
REGION ENGINEERING:				Work Order No.	
FUS SUPERVISOR APPROVAL:				SCALE: 1:1	
				SHEET: 1 OF 1	
				REV. 0	

 THE CITY OF SAN DIEGO	DEVELOPMENT SERVICES DEPARTMENT 1222 FIRST AVENUE SAN DIEGO, CA 92101-4155 619-446-5000	<h2 style="margin:0;">CONSTRUCTION PLAN</h2> UG FIBER RELOCATION-HPCC10000 SITE ADDRESS: 30TH ST & REDWOOD ST SAN DIEGO, CA	DISCRETIONARY PROJECT NO: _____ BUILDING PROJECT NO: _____ INTERNAL ORDER NO: _____ PROJECT TRACKING NO: _____
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NOTES

1. THE CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN (11"x17") FOR APPROVAL, PRIOR TO STARTING WORK. THE PLANS SHALL BE SUBMITTED TO THE TRAFFIC CONTROL PERMIT COUNTER AT THE ADDRESS IN THE ABOVE HEADING, ON THE 3RD FLOOR, BOOTH 22. FOR QUESTIONS, CALL (619) 446-5150. THE CONTRACTOR SHALL OBTAIN A TRAFFIC CONTROL PERMIT A MINIMUM OF TWO (2) WORKING DAYS PRIOR TO STARTING WORK, AND A MINIMUM OF FIVE (5) DAYS IF WORK WILL EFFECT A BUS STOP OR AN EXISTING TRAFFIC SIGNAL, OR WILL REQUIRE A ROAD OR ALLEY CLOSURE.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANUP OF ALL SILT AND MUD ON ADJACENT STREET(S), DUE TO CONSTRUCTION VEHICLES OR ANY OTHER CONSTRUCTION ACTIVITY, AT THE END OF EACH WORK DAY, OR AFTER A STORM EVENT THAT CAUSES A BREACH IN INSTALLED CONSTRUCTION BMPS THAT COMPROMISES STORM WATER QUALITY WITHIN ANY STREET(S). A STABILIZED CONSTRUCTION EXIT MAY BE REQUIRED TO PREVENT CONSTRUCTION VEHICLES OR EQUIPMENT FROM TRACKING MUD OR SILT ON TO THE STREET.
3. THE STORAGE OF ALL CONSTRUCTION MATERIALS AND EQUIPMENT MUST BE PROTECTED AGAINST ANY POTENTIAL RELEASE OF POLLUTANTS THE ENVIRONMENT.
4. A CONCRETE WASHOUT SHALL BE PROVIDED ON ALL PROJECTS THAT PROPOSE THE CONSTRUCTION OF CONCRETE IMPROVEMENTS THAT ARE TO BE POURED IN PLACE ON SITE.
5. BEFORE EXCAVATION, CALL UNDERGROUND SERVICE ALERT (800) 422-4133
6. PRIOR TO ANY DISTURBANCE TO THE SITE, EXCLUDING UTILITY MARK-OUTS AND SURVEYING, THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR A PRE-CONSTRUCTION MEETING WITH THE CITY OF SAN DIEGO FIELD ENGINEERING DIVISION (858) 627-3200.
7. THE CONTRACTOR IS RESPONSIBLE FOR THE COST OF REPLACING ALL SURVEY MONUMENTS WHICH ARE DAMAGED OR DESTROYED BY CONSTRUCTION. PRIOR TO CONSTRUCTION, SURVEY MONUMENTS THAT ARE LOCATED IN THE CONSTRUCTION WORK AREA SHALL BE TIED-OUT AND REFERENCED BY A LAND SURVEYOR. UPON COMPLETION OF CONSTRUCTION, ALL DESTROYED SURVEY MONUMENTS ARE REQUIRED TO BE REPLACED, AND A CORNER RECORD OR RECORD OF SURVEY SHALL BE PREPARED AND FILED WITH THE COUNTY SURVEYOR AS REQUIRED BY THE PROFESSIONAL LAND SURVEYORS ACT, SECTION 8771 OF THE BUSINESS AND PROFESSIONS CODE OF THE STATE OF CALIFORNIA.
8. IF ANY VERTICAL CONTROL IS TO BE DISTURBED OR DESTROYED, THE CITY OF SAN DIEGO FIELD SURVEY SECTION MUST BE NOTIFIED, IN WRITING, AT LEAST 3 DAYS PRIOR TO THE CONSTRUCTION. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE COST OF REPLACING ANY VERTICAL CONTROL BENCHMARKS DESTROYED BY THE CONSTRUCTION.
9. ALL APPROVALS GRANTED HEREON ARE BASED ON INFORMATION PROVIDED BY THE APPLICANT. APPROVAL OF THIS PERMIT DOES NOT AUTHORIZE VIOLATION OF ANY CODES OR REGULATIONS. THE CITY'S RESIDENT ENGINEER RESERVES THE RIGHT TO MODIFY THE WORK TO BE DONE, AS ACTUAL FIELD CONDITIONS MAY DICTATE.

SPECIFICATIONS/STANDARD DRAWINGS

ALL WORK SHALL BE DONE IN ACCORDANCE WITH THIS PLAN, THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, AND THE CITY OF SAN DIEGO STANDARD DRAWINGS, AS LAST AMENDED.

LEGEND

DESCRIPTION	STANDARD DRAWING	SYMBOL
<u>PROPOSED IMPROVEMENTS</u>		
2' X 3' VAULT, STANDARD (PVT)		□
PCC SIDEWALK REMOVE & REPLACE	SDG-155, SDG-156	■
ASPHALT TRENCH RESTORATION / RESURFACING	SDG-117	▨
UNDERGROUND CONDUIT		—

EXISTING IMPROVEMENTS

DESCRIPTION	STANDARD DRAWING	SYMBOL
EXISTING STREET LIGHT		⊙
EXISTING HANDHOLE/VAULT		□
EXISTING SERVICE POLE		⊗
EXISTING SIGN POST/BUS STOP		⊙
EXISTING BENCH		■
EXISTING MONUMENT		⊙
EXISTING MANHOLE		⊙
EXISTING CURB RAMP		↙
EXISTING CURB & GUTTER		—
EXISTING CENTERLINE		—
EXISTING RIGHT OF WAY		— R/W —
EXISTING SUBDIVISION BOUNDARY		—
STATION POINTS @ (100' INCREMENTS)		+
EXISTING STORM DRAIN	SD	— SD —
EXISTING WATER	W	— W —
EXISTING WATER LATERAL	W	— W —
EXISTING SEWER	S	— S —
EXISTING SEWER LATERAL	S	— S —
EXISTING GAS VALVE	G	⊙
EXISTING GAS	G	— G —
EXISTING GAS LATERAL	G	— G —
EXISTING UNKNOWN UTILITY/FACILITIES		—
EXISTING ELECTRIC	E	— E —
EXISTING TELEPHONE	T	— T —
EXISTING FIBER	F	— F —
EXISTING TRENCH		—

Note:
 Utility drawings are for relocations that will occur before construction or during specified utility windows. This drawing is for information only and locations should be verified by the contractor.



DEVELOPMENT SERVICES DEPARTMENT
 APPROVED CONSTRUCTION PLAN

ENGINEERING PERMIT NUMBER

SIGNATURE _____ DATE _____

FOOTAGE TOTALS	
PUNCH THRU	8'
DIRT TRENCH	17'
ASPHALT TRENCH	346'
CONCRETE TRENCH	0'
BORE	0'
TOTAL	371'
PCC SIDEWALK TOTAL	60 SQ. FT.

SHEET INDEX:

TITLE SHEET	1	OF	7
STREET EXCAVATION SHEET	2	OF	7
NOTES & DETAILS	3	OF	7
DETAILS	4	OF	7
IMPROVEMENT PLAN	5	OF	7
UTILITY CROSSING SHEET	6	OF	7
EROSION CONTROL PLAN	7	OF	7

CITY OF SAN DIEGO MAP REFERENCE:

REDWOOD ST & 30TH ST _____ DWG. 34939-1-D
 REDWOOD ST & 30TH ST _____ DWG. 553637-020

NOTE: FOR INSPECTION PLEASE CALL (858) 627-3200

SHEET 1 OF 7

THE FOLLOWING INFORMATION IS TO BE PROVIDED BY THE WATER REVIEW SECTION PLAN REVIEWER DIVISION OF INFORMATION AND APPLICATION SERVICES: ENTER THIS INFORMATION INTO I.O.S.

FIRE SERVICE BILLING CODE: _____

FIRE SERVICE BILLING CODE: SP: _____ ST: _____ FH# _____

WATER SECTION REVIEWER NAME: _____ DATE: _____

SEWER SECTION REVIEWER NAME: _____ DATE: _____

NSSQ: _____

CONNECTIONS: _____

PREPARED FOR: H.P. COMMUNICATIONS INC.
 NAME: JOSE L. ORTEGA
 ADDRESS: 15453 OLD HWY 80, EL CAJON, CA 92120
 PHONE: (951) 382-2970

PREPARED BY:
 NAME: ER (5/25/17)
 ADDRESS/PHONE: 5841 EDISON PL STE. #200 CARLSBAD, CA 92008
 (760) 929-0910

PERMIT NUMBER:



THE CITY OF SAN DIEGO

DEVELOPMENT SERVICES DEPARTMENT
1222 FIRST AVENUE
SAN DIEGO, CA 92101-4155
619-446-5000

CONSTRUCTION PLAN

UG FIBER RELOCATION-HPCC10000
SITE ADDRESS: 30TH ST & REDWOOD ST
SAN DIEGO, CA

DISCRETIONARY PROJECT NO: _____
BUILDING PROJECT NO: _____
INTERNAL ORDER NO: _____
PROJECT TRACKING NO: _____

STREET EXCAVATION TABLE

STREET NAME	STREET CLASSIFICATION (ARTERIAL, MAJOR, COLLECTOR, RESIDENTIAL)	UTILITY TYPE (WET OR DRY)	LATERAL OR MAIN	STREET SERVICE AGE (YRS)	INFLUENCE AREA WIDTH (FT) PER SDMC 62.1208	TRENCH WIDTH (FT)	TRENCH LENGTH (FT)
REDWOOD ST	COLLECTOR	DRY	MAIN	20	3.58	.5	142'
REDWOOD ST	COLLECTOR	DRY	MAIN	20	3.58	.5	160'
30TH ST	COLLECTOR	DRY	MAIN	14	3.58	.5	40'

EXCAVATION MORATORIUM (CHECK ONE):

- LOCATION OF EXCAVATION IS NOT ON A MORATORIUM STREET
 - _____ FROM _____ TO _____ IS A MORATORIUM STREET
STREET NAME STREET NAME STREET NAME
- AS DEFINED IN MUNICIPAL CODE SECTION 62.1203 FOR: OVERLAY SLURRY
MORATORIUM EXPIRES ON _____ MORATORIUM IS WAIVED.
DATE

RESURFACING REQUIREMENTS (CHECK ONE):

- THE EXCAVATION IS IN THE DIRECTION OF TRAFFIC. THE EXCAVATOR SHALL RESURFACE THE ENTIRE EXCAVATION AREA PLUS THE EXCAVATION INFLUENCE AREA ON EACH END OF THE EXCAVATION AREA, AND THE ENTIRE WIDTH OF THE STREET FROM CURB TO CURB OR WHERE A RAISED MEDIAN IS PRESENT THE EXCAVATOR SHALL RESURFACE FROM CURB LINE TO RAISED MEDIAN
- THE EXCAVATION IS PERPENDICULAR TO THE DIRECTION OF TRAFFIC. THE EXCAVATOR SHALL RESURFACE THE ENTIRE LENGTH OF EXCAVATION FROM CURB TO CURB OR FOR THE LENGTH OF THE EXCAVATION PLUS THE EXCAVATION INFLUENCE AREA EXTENDING ON EACH END OF THE EXCAVATION, WHICHEVER IS LESS. THE RESURFACE SHALL ALSO INCLUDE THE EXCAVATION AREA PLUS THE EXCAVATION INFLUENCE AREA ON EACH SIDE OF THE EXCAVATION AREA.
- A RAISED MEDIAN IS PRESENT AND THE EXCAVATION IS PERPENDICULAR TO THE DIRECTION OF TRAFFIC. THE EXCAVATOR SHALL RESURFACE EITHER FROM THE RAISED MEDIAN TO THE CURB OR FOR THE LENGTH OF THE EXCAVATION PLUS THE EXCAVATION INFLUENCE AREA EXTENDING ON EACH END OF THE EXCAVATION, WHICHEVER IS LESS. THE RESURFACE SHALL ALSO INCLUDE THE EXCAVATION AREA PLUS THE EXCAVATION INFLUENCE AREA ON EACH SIDE OF THE EXCAVATION AREA.

Note:
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NAME: JOSE L. ORTEGA
ADDRESS: 15453 OLD HWY 80, EL CAJON, CA 92120
PHONE: (951)382-2970

PREPARED BY:
NAME: ER (5/25/17)
ADDRESS/PHONE: 5841 EDISON PL STE. #200 CARLSBAD, CA 92008 (760) 929-0910

PERMIT NUMBER:



THE CITY OF SAN DIEGO

DEVELOPMENT SERVICES DEPARTMENT
1222 FIRST AVENUE
SAN DIEGO, CA 92101-4155
619-446-5000

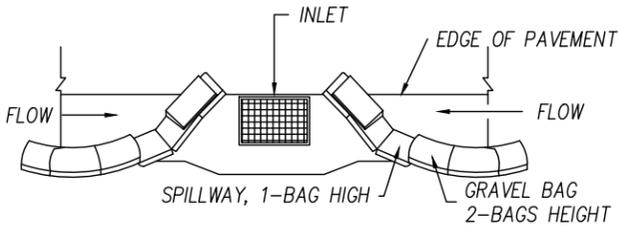
CONSTRUCTION PLAN

UG FIBER RELOCATION-HPCC10000
SITE ADDRESS: 30TH ST & REDWOOD ST
SAN DIEGO, CA

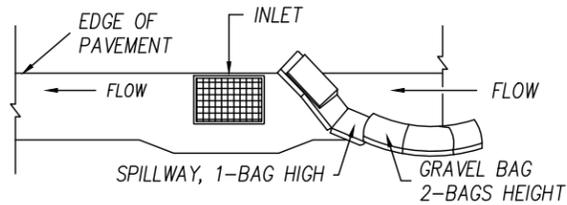
DISCRETIONARY PROJECT NO: _____
BUILDING PROJECT NO: _____
INTERNAL ORDER NO: _____
PROJECT TRACKING NO: _____

STORMDRAIN INLET PROTECTION

SC-10



TYPICAL PROTECTION FOR INLET WITH OPPOSING FLOW DIRECTIONS



TYPICAL PROTECTION FOR INLET WITH SINGLE FLOW DIRECTION

NOTES:

1. INTENDED FOR SHORT - TERM USE.
2. USE TO INHIBIT NON - STORM WATER FLOW.
3. ALLOW FOR PROPER MAINTENANCE AND CLEANUP.
4. BAGS MUST BE REMOVED AFTER ADJACENT OPERATION IS COMPLETED.
5. NOT APPLICABLE IN AREAS WITH HIGH SILTS AND CLAYS WITHOUT FILTER FABRIC.

NOTES:

1. CONTRACTOR TO POTHOLE ALL UTILITY CROSSINGS.
2. CONTRACTOR TO PLACE GRAVEL BAGS AROUND ANY/ALL STORM DRAIN INLETS TO PREVENT CONTAMINATED WATER.
3. SPOILS PILE WILL BE COVERED AND CONTAINED AND STREET WILL BE SWEEPED AND CLEANED AS NEEDED.
4. CONTRACTOR TO REPAIR DAMAGED PUBLIC IMPROVEMENTS TO THE SATISFACTION OF THE CITY ENGINEER.
5. CURB & GUTTER TO BE PROTECTED IN PLACE. SIDEWALK TO BE REPLACED TO THE SATISFACTION OF THE CITY ENGINEER.
6. THE CONTRACTOR SHALL RESTORE THE ROADWAY BACK TO ITS ORIGINAL CONDITION SATISFACTORY TO THE CITY ENGINEER INCLUDING, BUT NOT LIMITED TO PAVING, STRIPING, BIKE LANES, PAVEMENT LEGENDS, SIGNS, AND TRAFFIC LOOP DETECTORS.
7. SIDEWALK SHALL BE RESTORED/REPLACED PER CITY OF SAN DIEGO STANDARD DRAWINGS SDG-155, & SDG-156.
8. PEDESTRIAN RAMP WILL NOT BE DISTURBED.

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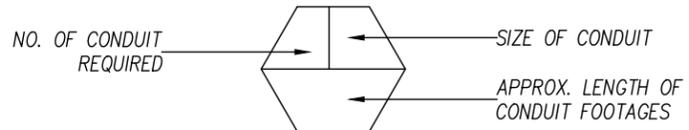
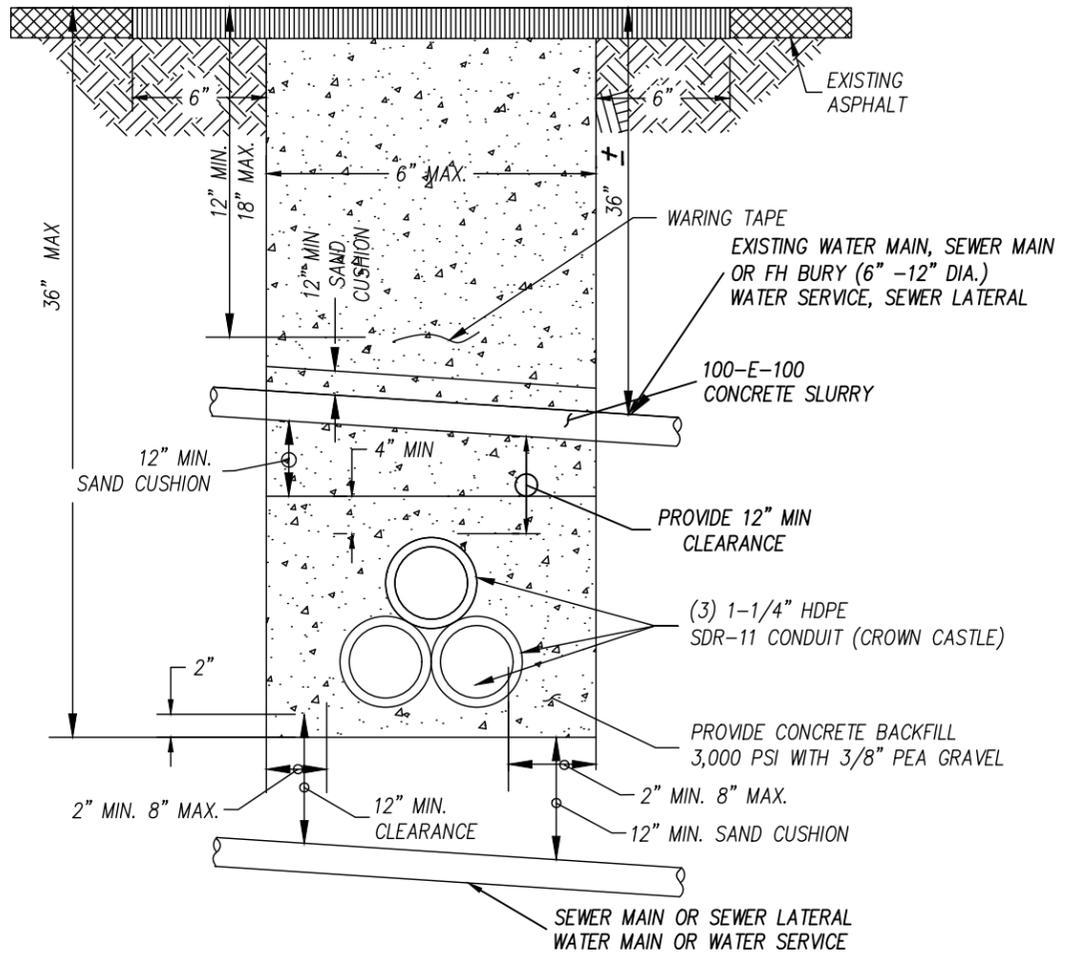
EROSION AND SEDIMENT CONTROL NOTES

TEMPORARY EROSION/SEDIMENT CONTROL, PRIOR TO COMPLETION OF FINAL IMPROVEMENTS, SHALL BE PERFORMED BY THE CONTRACTOR OR QUALIFIED PERSON AS INDICATED BELOW:

1. ALL REQUIREMENTS OF THE CITY OF SAN DIEGO "LAND DEVELOPMENT MANUAL, STORM WATER STANDARDS" MUST BE INCORPORATED INTO THE DESIGN AND CONSTRUCTION OF THE PROPOSED PUBLIC IMPROVEMENTS CONSISTENT WITH THE EROSION CONTROL PLAN AND/OR WATER POLLUTION CONTROL PLAN (WPCP), IF APPLICABLE.
2. FOR STORM DRAIN INLETS, PROVIDE A GRAVEL BAG SILT BASIN IMMEDIATELY UPSTREAM OF INLET AS INDICATED ON DETAILS.
3. THE CONTRACTOR OR QUALIFIED PERSON SHALL BE RESPONSIBLE FOR CLEANUP OF SILT AND MUD ON ADJACENT STREET(S) AND STORM DRAIN SYSTEM DUE TO CONSTRUCTION ACTIVITY.
4. THE CONTRACTOR SHALL REMOVE SILT AND DEBRIS AFTER EACH MAJOR RAINFALL.
5. EQUIPMENT AND WORKERS FOR EMERGENCY WORK SHALL BE MADE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON.
6. THE CONTRACTOR SHALL RESTORE ALL EROSION/SEDIMENT CONTROL DEVICES TO WORKING ORDER TO THE SATISFACTION OF THE CITY ENGINEER OR RESIDENT ENGINEER AFTER EACH RUN-OFF PRODUCING RAINFALL.
7. THE CONTRACTOR SHALL INSTALL ADDITIONAL EROSION/SEDIMENT CONTROL MEASURES AS MAY BE REQUIRED BY THE RESIDENT ENGINEER DUE TO UNFORESEEN CIRCUMSTANCES, WHICH MAY ARISE.
8. ALL EROSION/SEDIMENT CONTROL MEASURES PROVIDED PER THE APPROVED IMPROVEMENT PLAN SHALL BE INCORPORATED HEREON. ALL EROSION/SEDIMENT CONTROL FOR INTERIM CONDITIONS SHALL BE DONE TO THE SATISFACTION OF THE RESIDENT ENGINEER.
9. ALL REMOVABLE PROTECTIVE DEVICES SHOWN SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN RAIN IS IMMINENT.
10. THE CONTRACTOR SHALL ARRANGE FOR WEEKLY MEETINGS DURING OCTOBER 1ST TO APRIL 30TH FOR PROJECT TEAM (GENERAL CONTRACTOR, QUALIFIED PERSON, EROSION CONTROL SUBCONTRACTOR IF ANY, ENGINEER OF WORK, OWNER/DEVELOPER AND THE RESIDENT ENGINEER) TO EVALUATE THE ADEQUACY OF THE EROSION/SEDIMENT CONTROL MEASURES AND OTHER RELATED CONSTRUCTION ACTIVITIES.

TRENCH DETAIL

WATER MAIN, SEWER MAIN, WATER SERVICE, SEWER LATERAL CROSSINGS (FOR VERTICAL CLEARANCE ONLY)



BILL OF MATERIALS		
VAULTS (PVT)	DESCRIPTION	QUANTITY
	17" X 30"	0
	2' X 3'	3
CONDUIT (PVT)	DESCRIPTION	QUANTITY
	1-1/4" PVC	1,119'
	2" PVC	43'
	4" PVC	0'

NOTE:
EXACT TRENCH LINE TO BE DETERMINED BY CITY INSPECTOR AND CONTRACTOR AFTER USA MARKOUTS HAVE BEEN COMPLETED.

SHEET 3 OF 7

PREPARED FOR: H.P. COMMUNICATIONS INC.
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PHONE: (951)382-2970

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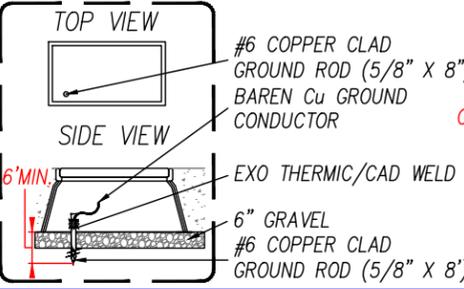
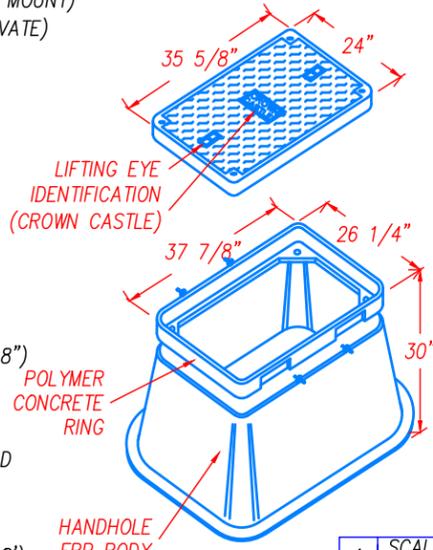
CONSTRUCTION PLAN

UG FIBER RELOCATION-HPCC10000
SITE ADDRESS: 30TH ST & REDWOOD ST
SAN DIEGO, CA

DISCRETIONARY PROJECT NO: _____
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INTERNAL ORDER NO: _____
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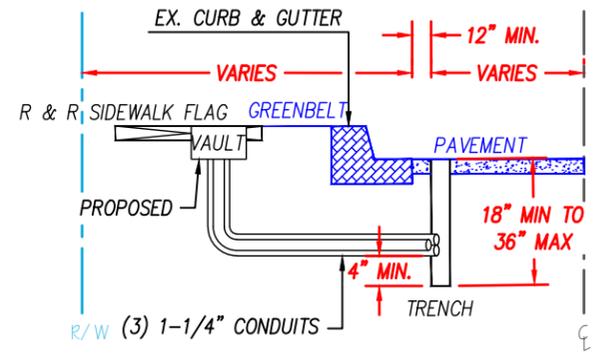
- COVER FEATURES:**
- * PW - 10,400 LBS. WHEEL LOAD ON 10" X 10" PLATE.
 - * APPROX. WT. = 72 LBS.
 - * POLYMER CONCRETE
 - * ONE PIECE COVER
 - * FOUR BOLT DOWN
 - * COLOR: CONCRETE GREY
 - * NON - SKID SURFACE
 - * LID TO HAVE H-20 TRAFFIC LOAD FRICTION COEFFICIENT TO BE 0.5 OR MORE
- HANDHOLE FEATURES:**
- * POLYMER CONCRETE RING AND FIBERGLASS REINFORCED POLYMER BODY
 - * COLOR OF RING: CONCRETE GREY
 - * APPROX. WT. = 123 LBS.

VAULT DETAIL
(FLUSH MOUNT)
(PRIVATE)



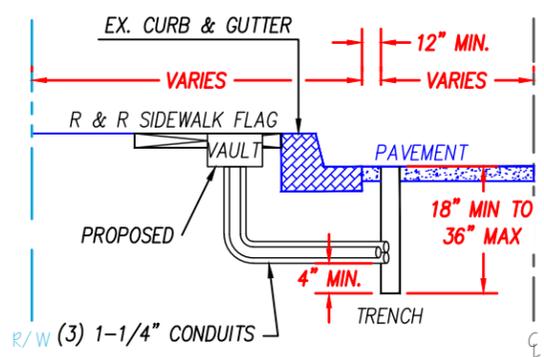
1 SCALE N.T.S.

PUNCH THRU CROSS SECTION
TYPICAL SECTION: N.T.S.



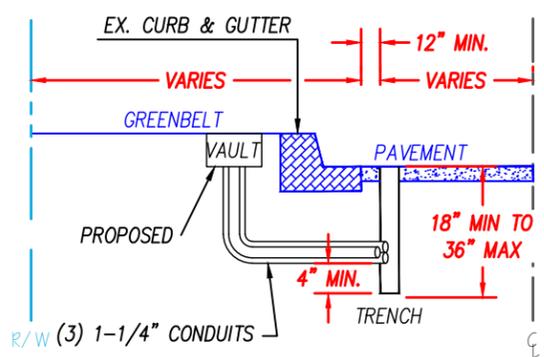
2 SCALE N.T.S.

PUNCH THRU CROSS SECTION
TYPICAL SECTION: N.T.S.



3 SCALE N.T.S.

PUNCH THRU CROSS SECTION
TYPICAL SECTION: N.T.S.



4 SCALE N.T.S.

Note:
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THE CITY OF SAN DIEGO

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1222 FIRST AVENUE
SAN DIEGO, CA 92101-4155
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CONSTRUCTION PLAN

UG FIBER RELOCATION-HPCC10000
SITE ADDRESS: 30TH ST & REDWOOD ST
SAN DIEGO, CA

DISCRETIONARY
PROJECT NO: _____
BUILDING
PROJECT NO: _____
INTERNAL ORDER NO: _____
PROJECT TRACKING NO: _____

UTILITY CALL-OUTS

TRENCH / BORE

UTILITY CROSSING	STA.#	UTILITY CROSSING
WM-1	98 + 95	EXISTING 30" C.I. / EXISTING 8" A.C. WATER @ 3' BELOW GRADE (DWG. 34939-1-D). NEW CONDUITS WILL BE PLACED BELOW EXISTING PIPE. MAINTAIN A MINIMUM 12" VERTICAL CLEARANCE. REDWOOD ST / 30TH ST
WM-2	100 + 14	
WM-3	100 + 19	
WM-4	100 + 40	
WM-5	100 + 40	
SM-1	98 + 95	UNKNOWN SEWER @ 6' BELOW GRADE (DWG. 34939-1-D). PLACE NEW CONDUITS AT MINIMUM DEPTH OF 42" BELOW GRADE TO TOP OF PIPE. MAINTAIN A MINIMUM 12" VERTICAL CLEARANCE. REDWOOD ST / 30TH ST
SM-2	99 + 90	
GM-1	100 + 09	UNKNOWN GAS @ UNKNOWN BELOW GRADE (DWG. 34939-1-D). NEW CONDUITS WILL BE PLACED PER FIELD CONDITIONS. MAINTAIN A MINIMUM 12" VERTICAL CLEARANCE. REDWOOD ST / 30TH ST
GM-2	100 + 41	
SDM-1	101 + 17	EXISTING 24" RCP STORM DRAIN @ UNKNOWN BELOW GRADE (DWG. 34939-1-D). MAINTAIN A MINIMUM 12" VERTICAL CLEARANCE. NEW CONDUITS WILL BE PLACED PER FIELD CONDITIONS. REDWOOD ST & 30TH ST
SDM-2	99 + 78	
SDM-3	100 + 28	
SDM-4	100 + 26	
SDM-5	101 + 41	
FOM-1	99 + 95	UNKNOWN FIBER OPTIC @ UNKNOWN BELOW GRADE (DWG. 34939-1-D). MAINTAIN A MINIMUM 12" VERTICAL CLEARANCE. NEW CONDUIT WILL BE PLACED PER FIELD CONDITIONS. REDWOOD ST & 30TH ST
FOM-2	100 + 04	
FOM-3	100 + 09	
FOM-4	99 + 83	
FOM-5	99 + 95	
FOM-6	101 + 41	
TM-1	99 + 95	EXISTING TELE. 2" MTC @ UNKNOWN BELOW GRADE (DWG. 34939-1-D). MAINTAIN A MINIMUM 12" VERTICAL CLEARANCE. NEW CONDUIT WILL BE PLACED PER FIELD CONDITIONS. REDWOOD ST
TM-2	101 + 41	
EM-1	100 + 09	UNKNOWN ELECTRIC @ UNKNOWN BELOW GRADE (DWG. 34939-1-D). MAINTAIN A MINIMUM 12" VERTICAL CLEARANCE. NEW CONDUIT WILL BE PLACED PER FIELD CONDITIONS. REDWOOD ST & 30TH ST
EM-2	100 + 30	
EM-3	99 + 95	

UTILITY CALL-OUTS

TRENCH / BORE FOR LATERALS

UTILITY CROSSING	STA.#	UTILITY CROSSING
WL-1	100 + 60	UNKNOWN WATER / FIRE SERVICE @ 3' BELOW GRADE (DWG. 34939-1-D). NEW CONDUITS WILL BE PLACED BELOW EXISTING PIPE. MAINTAIN A MINIMUM 12" VERTICAL CLEARANCE. REDWOOD ST
SL-1	99 + 39	UNKNOWN SEWER SERVICE @ 6' BELOW GRADE (DWG. 34939-1-D). PLACE NEW CONDUITS AT MINIMUM DEPTH OF 42" BELOW GRADE TO TOP OF PIPE. MAINTAIN A MINIMUM 12" VERTICAL CLEARANCE. REDWOOD ST
SL-2	99 + 57	
SL-3	100 + 66	

Note:

Utility drawings are for relocations that will occur before construction or during specified utility windows. This drawing is for information only and locations should be verified by the contractor.

SHEET 6 OF 7

PREPARED FOR: H.P. COMMUNICATIONS INC.
NAME: JOSE L. ORTEGA
ADDRESS: 15453 OLD HWY 80, EL CAJON, CA 92120
PHONE: (951)382-2970

PREPARED BY:
NAME: ER (5/25/17)
ADDRESS/PHONE: 5841 EDISON PL STE. #200 CARLSBAD, CA 92008 (760) 929-0910

PERMIT NUMBER:

THIS INFORMATION IS AVAILABLE IN ALTERNATIVE FORMATS FOR PERSONS WITH DISABILITIES.

DS-3179 (02/01/2013)



THE CITY OF SAN DIEGO

DEVELOPMENT SERVICES DEPARTMENT
1222 FIRST AVENUE
SAN DIEGO, CA 92101-4155
619-446-5000

CONSTRUCTION PLAN

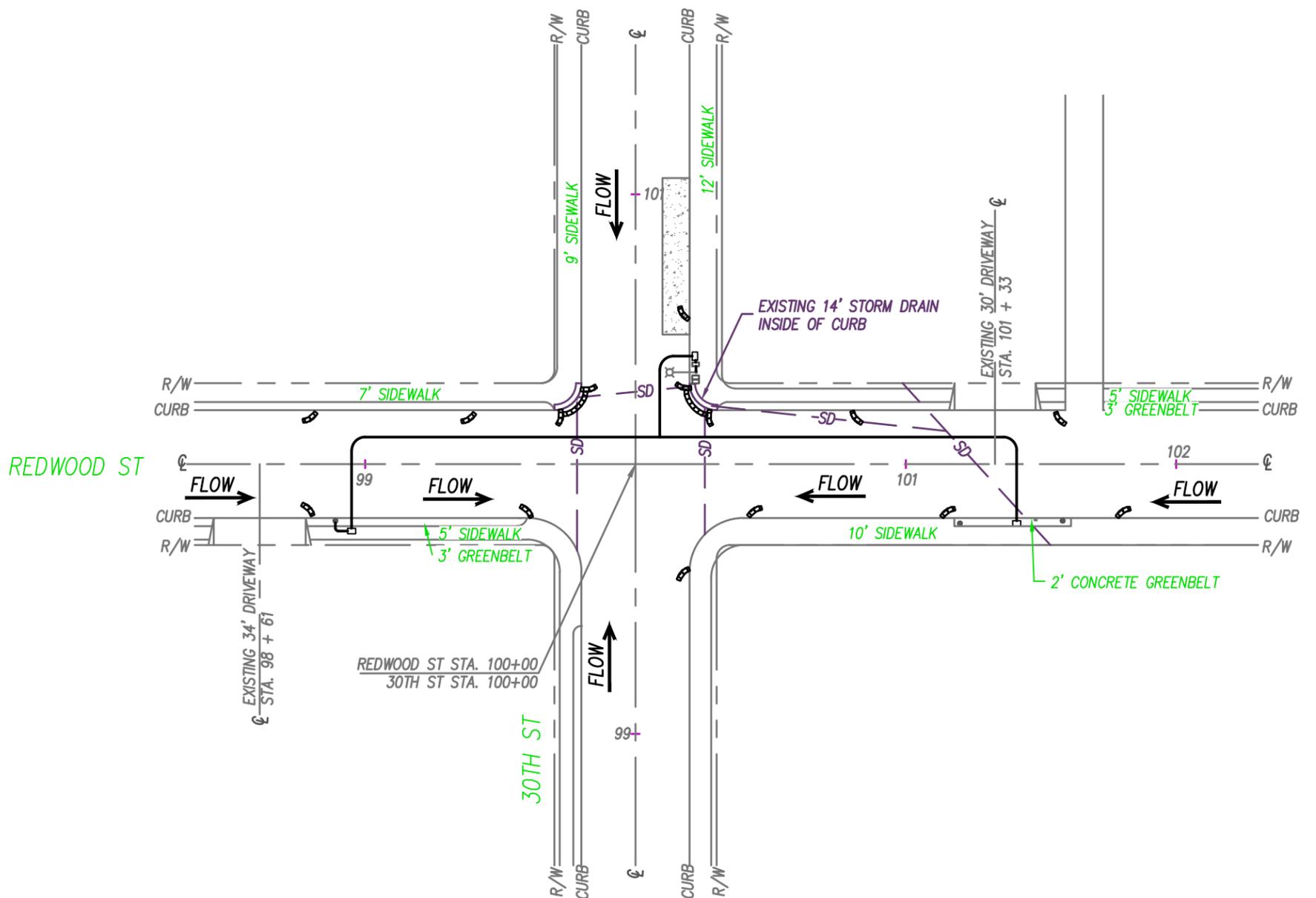
UG FIBER RELOCATION-HPCC10000
SITE ADDRESS: 30TH ST & REDWOOD ST
SAN DIEGO, CA

DISCRETIONARY PROJECT NO: _____
BUILDING PROJECT NO: _____
INTERNAL ORDER NO: _____
PROJECT TRACKING NO: _____

LEGEND

DESCRIPTION	STANDARD DRAWING	SYMBOL
ELEVATION FLOW		
GRAVEL BAGS	SC-5, SC-8	
EXISTING STORM DRAIN MAIN		
STREET SWEEPING & VACUUMING	SC-7	
SPILL PREVENTION & CONTROL	WM-4	
SOLID WASTE MANAGEMENT	WM-5	

Note:
Utility drawings are for relocations that will occur before construction or during specified utility windows. This drawing is for information only and locations should be verified by the contractor.



DIGALERT



1-800-227-2600
CALL AT LEAST TWO DAYS BEFORE YOU DIG

UNDERGROUND SERVICE ALERT

TICKET # _____



SCALE=1:50

SHEET 7 OF 7

PREPARED FOR: H.P. COMMUNICATIONS INC.
NAME: JOSE L. ORTEGA
ADDRESS: 15453 OLD HWY 80, EL CAJON, CA 92120
PHONE: (951)382-2970

PREPARED BY:
NAME: ER (5/25/17)
ADDRESS/PHONE: 5841 EDISON PL STE. #200 CARLSBAD, CA 92008
(760) 929-0910

PERMIT NUMBER: _____

ATTACHMENT F
INTENTIONALLY LEFT BLANK

ATTACHMENT G

CONTRACT AGREEMENT

CONTRACT AGREEMENT

CONSTRUCTION CONTRACT

This contract is made and entered into between THE CITY OF SAN DIEGO, a municipal corporation, herein called "City", and Ortiz Corporation, herein called "Contractor" for construction of **30th STREET PIPELINE REPLACEMENT**; Bid No. **K-18-1517-DBB-3-A**; in the amount of **Twenty One Million Eight Hundred Thirty Seven Thousand Two Hundred Eighty Seven Dollars and Twenty Cents (\$21,837,287.20)**, which is comprised of the Base Bid plus Additive Alternates A and B.

IN CONSIDERATION of the payments to be made hereunder and the mutual undertakings of the parties hereto, City and Contractor agree as follows:

1. The following are incorporated into this contract as though fully set forth herein:
 - (a) The attached Faithful Performance and Payment Bonds.
 - (b) The attached Proposal included in the Bid documents by the Contractor.
 - (c) Reference Standards listed in the Instruction to Bidders and the Supplementary Special Provisions (SSP).
 - (d) That certain documents entitled **30th STREET PIPELINE REPLACEMENT**, on file in the office of the Public Works Department as Document No. **S-12010**, as well as all matters referenced therein.
2. The Contractor shall perform and be bound by all the terms and conditions of this contract and in strict conformity therewith shall perform and complete in a good and workmanlike manner **30th STREET PIPELINE REPLACEMENT**, Bid Number **K-18-1517-DBB-3-A**, San Diego, California.
3. For such performances, the City shall pay to Contractor the amounts set forth at the times and in the manner and with such additions or deductions as are provided for in this contract, and the Contractor shall accept such payment in full satisfaction of all claims incident to such performances.
4. No claim or suit whatsoever shall be made or brought by Contractor against any officer, agent, or employee of the City for or on account of anything done or omitted to be done in connection with this contract, nor shall any such officer, agent, or employee be liable hereunder.
5. This contract is effective as of the date that the Mayor or designee signs the agreement.

CONTRACT AGREEMENT (continued)

IN WITNESS WHEREOF, this Agreement is signed by the City of San Diego, acting by and through its Mayor or designee, pursuant to Municipal Code §22.3102 authorizing such execution.

THE CITY OF SAN DIEGO

APPROVED AS TO FORM

Mara W. Elliott, City Attorney

By 

By 

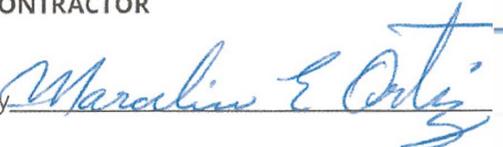
Print Name: James Nagelvoort
Director
Public Works Department

Print Name: Red de la Rosa, Jr.
Deputy City Attorney

Date: 2/13/2018

Date: 2/20/18

CONTRACTOR

By 

Print Name: Marcelino E. Ortiz

Title: President

Date: 4/15/17

City of San Diego License No.: B1996008117

State Contractor's License No.: 602454

DEPARTMENT OF INDUSTRIAL RELATIONS (DIR) REGISTRATION NUMBER: 1000001045

CERTIFICATIONS AND FORMS

The Bidder, by submitting its electronic bid, agrees to and certifies under penalty of perjury under the laws of the State of California, that the certifications, forms and affidavits submitted as part of this bid are true and correct.

Bidder's General Information

To the City of San Diego:

Pursuant to "Notice Inviting Bids", specifications, and requirements on file with the City Clerk, and subject to all provisions of the Charter and Ordinances of the City of San Diego and applicable laws and regulations of the United States and the State of California, the undersigned hereby proposes to furnish to the City of San Diego, complete at the prices stated herein, the items or services hereinafter mentioned. The undersigned further warrants that this bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

The undersigned bidder(s) further warrants that bidder(s) has thoroughly examined and understands the entire Contract Documents (plans and specifications) and the Bidding Documents therefore, and that by submitting said Bidding Documents as its bid proposal, bidder(s) acknowledges and is bound by the entire Contract Documents, including any addenda issued thereto, as such Contract Documents incorporated by reference in the Bidding Documents.

**NON-COLLUSION AFFIDAVIT TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID UNDER 23
UNITED STATES CODE 112 AND PUBLIC CONTRACT CODE 7106**

State of California

County of San Diego

The bidder, being first duly sworn, deposes and says that he or she is authorized by the party making the foregoing bid that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

CONTRACTOR CERTIFICATION

DRUG-FREE WORKPLACE

I hereby certify that I am familiar with the requirements of San Diego City Council Policy No. 100-17 regarding Drug-Free Workplace as outlined in the WHITEBOOK, Section 7-13.3, "Drug-Free Workplace", of the project specifications, and that;

This company has in place a drug-free workplace program that complies with said policy. I further certify that each subcontract agreement for this project contains language which indicates the subcontractor's agreement to abide by the provisions of subdivisions a) through c) of the policy as outlined.

CONTRACTOR CERTIFICATION

AMERICAN WITH DISABILITIES ACT (ADA) COMPLIANCE CERTIFICATION

I hereby certify that I am familiar with the requirements of San Diego City Council Policy No. 100-4 regarding the American With Disabilities Act (ADA) outlined in the WHITEBOOK, Section 7-13.2, "American With Disabilities Act", of the project specifications, and that:

This company has in place workplace program that complies with said policy. I further certify that each subcontract agreement for this project contains language which indicates the subcontractor's agreement to abide by the provisions of the policy as outlined.

CONTRACTOR CERTIFICATION

CONTRACTOR STANDARDS – PLEDGE OF COMPLIANCE

I declare under penalty of perjury that I am authorized to make this certification on behalf of the company submitting this bid/proposal, that as Contractor, I am familiar with the requirements of City of San Diego Municipal Code § 22.3004 regarding Contractor Standards as outlined in the WHITEBOOK, Section 7-13.4, ("Contractor Standards"), of the project specifications, and that Contractor has complied with those requirements.

I further certify that each of the Contractor's subcontractors whose subcontracts are greater than \$50,000 in value has completed a Pledge of Compliance attesting under penalty of perjury of having complied with City of San Diego Municipal Code § 22.3004.

CONTRACTOR CERTIFICATION

EQUAL BENEFITS ORDINANCE CERTIFICATION

I declare under penalty of perjury that I am familiar with the requirements of and in compliance with the City of San Diego Municipal Code § 22.4300 regarding Equal Benefits Ordinance.

AFFIDAVIT OF DISPOSAL

(To be submitted upon completion of Construction pursuant to the contracts Certificate of completion)

WHEREAS, on the _____ DAY OF _____, 2_____ the undersigned entered into and executed a contract with the City of San Diego, a municipal corporation, for:

30th STREET PIPELINE REPLACEMENT

(Name of Project)

as particularly described in said contract and identified as Bid No. **K-18-1517-DBB-3-A**; SAP No. (WBS/IO/CC) **S-12010**; and **WHEREAS**, the specification of said contract requires the Contractor to affirm that "all brush, trash, debris, and surplus materials resulting from this project have been disposed of in a legal manner"; and **WHEREAS**, said contract has been completed and all surplus materials disposed of:

NOW, THEREFORE, in consideration of the final payment by the City of San Diego to said Contractor under the terms of said contract, the undersigned Contractor, does hereby affirm that all surplus materials as described in said contract have been disposed of at the following location(s)

and that they have been disposed of according to all applicable laws and regulations.

Dated this _____ DAY OF _____, _____.

_____ Contractor

by

ATTEST:

State of _____ County of _____

On this _____ DAY OF _____, 2_____, before the undersigned, a Notary Public in and for said County and State, duly commissioned and sworn, personally appeared _____ known to me to be the _____ Contractor named in the foregoing Release, and whose name is subscribed thereto, and acknowledged to me that said Contractor executed the said Release.

Notary Public in and for said County and State

LIST OF SUBCONTRACTORS

***** PROVIDED FOR ILLUSTRATIVE PURPOSES ONLY *** TO BE SUBMITTED IN ELECTRONIC FORMAT ONLY *** SEE INSTRUCTIONS TO BIDDERS, FOR FURTHER INFORMATION**

In accordance with the requirements of the "Subletting and Subcontracting Fair Practices Act", Section 4100, of the California Public Contract Code (PCC), the Bidder is to list below the name, address and license number of each Subcontractor who will perform work, labor, render services or specially fabricate and install a portion [type] of the work or improvement, in an amount of or in excess of 0.5% of the Contractor's total Bid. Failure to comply with this requirement may result in the Bid being rejected as non-responsive. The Contractor is to list only one Subcontractor for each portion of the Work. The Bidder's attention is directed to the Special Provisions - General; Paragraph 2-3 Subcontracts, which stipulates the percentage of the Work to be performed with the Bidder's own forces. The Bidder is to also list all SLBE, ELBE, DBE, DVBE, MBE, WBE, OBE, SDB, WoSB, HUBZone, and SDVOSB Subcontractors for which the Bidders are seeking recognition towards achieving any mandatory, voluntary, or both subcontracting participation percentages.

NAME, ADDRESS AND TELEPHONE NUMBER OF SUBCONTRACTOR	CONSTRUCTOR OR DESIGNER	SUBCONTRACTOR LICENSE NUMBER	TYPE OF WORK	DOLLAR VALUE OF SUBCONTRACT	MBE, WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVOSB ^①	WHERE CERTIFIED ^②	CHECK IF JOINT VENTURE PARTNERSHIP
Name: _____ Address: _____ City: _____ State: _____ Zip: _____ Phone: _____ Email: _____							
Name: _____ Address: _____ City: _____ State: _____ Zip: _____ Phone: _____ Email: _____							

- ① As appropriate, Bidder shall identify Subcontractor as one of the following and shall include a valid proof of certification (except for OBE, SLBE and ELBE):
- | | | | |
|---|--------|--|---------|
| Certified Minority Business Enterprise | MBE | Certified Woman Business Enterprise | WBE |
| Certified Disadvantaged Business Enterprise | DBE | Certified Disabled Veteran Business Enterprise | DVBE |
| Other Business Enterprise | OBE | Certified Emerging Local Business Enterprise | ELBE |
| Certified Small Local Business Enterprise | SLBE | Small Disadvantaged Business | SDB |
| Woman-Owned Small Business | WoSB | HUBZone Business | HUBZone |
| Service-Disabled Veteran Owned Small Business | SDVOSB | | |
- ② As appropriate, Bidder shall indicate if Subcontractor is certified by:
- | | | | |
|--|--------|--|----------|
| City of San Diego | CITY | State of California Department of Transportation | CALTRANS |
| California Public Utilities Commission | CPUC | | |
| State of California's Department of General Services | CADoGS | City of Los Angeles | LA |
| State of California | CA | U.S. Small Business Administration | SBA |

The Bidder will not receive any subcontracting participation percentages if the Bidder fails to submit the required proof of certification..

NAMED EQUIPMENT/MATERIAL SUPPLIER LIST

*** PROVIDED FOR ILLUSTRATIVE PURPOSES ONLY *** TO BE SUBMITTED IN ELECTRONIC FORMAT ONLY *** SEE INSTRUCTIONS TO BIDDERS FOR FURTHER INFORMATION

NAME, ADDRESS AND TELEPHONE NUMBER OF VENDOR/SUPPLIER	MATERIALS OR SUPPLIES	DOLLAR VALUE OF MATERIAL OR SUPPLIES	SUPPLIER (Yes/No)	MANUFACTURER (Yes/No)	MBE, WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVOSB ^①	WHERE CERTIFIED ^②
Name: _____ Address: _____ City: _____ State: _____ Zip: _____ Phone: _____ Email: _____						
Name: _____ Address: _____ City: _____ State: _____ Zip: _____ Phone: _____ Email: _____						

- ① As appropriate, Bidder shall identify Vendor/Supplier as one of the following and shall include a valid proof of certification (except for OBE, SLBE and ELBE):
- | | | | |
|---|--------|--|---------|
| Certified Minority Business Enterprise | MBE | Certified Woman Business Enterprise | WBE |
| Certified Disadvantaged Business Enterprise | DBE | Certified Disabled Veteran Business Enterprise | DVBE |
| Other Business Enterprise | OBE | Certified Emerging Local Business Enterprise | ELBE |
| Certified Small Local Business Enterprise | SLBE | Small Disadvantaged Business | SDB |
| Woman-Owned Small Business | WoSB | HUBZone Business | HUBZone |
| Service-Disabled Veteran Owned Small Business | SDVOSB | | |
- ② As appropriate, Bidder shall indicate if Vendor/Supplier is certified by:
- | | | | |
|--|--------|--|----------|
| City of San Diego | CITY | State of California Department of Transportation | CALTRANS |
| California Public Utilities Commission | CPUC | | |
| State of California's Department of General Services | CADoGS | City of Los Angeles | LA |
| State of California | CA | U.S. Small Business Administration | SBA |

The Bidder will not receive any subcontracting participation percentages if the Bidder fails to submit the required proof of certification.

SUBCONTRACTORS ADDITIVE/DEDUCTIVE ALTERNATE (USE ONLY WHEN ADDITIVE ALTERNATES ARE REQUIRED)

***** PROVIDED FOR ILLUSTRATIVE PURPOSES ONLY *** TO BE SUBMITTED IN ELECTRONIC FORMAT ONLY *** SEE INSTRUCTIONS TO BIDDERS, FOR FURTHER INFORMATION**

ADDITIVE/DEDUCTIVE ALTERNATE	NAME, ADDRESS AND TELEPHONE NUMBER OF SUBCONTRACTOR	CONSTRUCTOR OR DESIGNER	SUBCONTRACT OR LICENSE NUMBER	TYPE OF WORK	DOLLAR VALUE OF SUBCONTRACT	MBE, WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVOSB ^①	WHERE CERTIFIED ^②	CHECK IF JOINT VENTURE PARTNERSHIP
	Name: _____ Address: _____ City: _____ State: _____ Zip: _____ Phone: _____ Email: _____							
	Name: _____ Address: _____ City: _____ State: _____ Zip: _____ Phone: _____ Email: _____							

^① As appropriate, Bidder shall identify Subcontractor as one of the following and shall include a valid proof of certification (except for OBE, SLBE and ELBE):

Certified Minority Business Enterprise	MBE	Certified Woman Business Enterprise	WBE
Certified Disadvantaged Business Enterprise	DBE	Certified Disabled Veteran Business Enterprise	DVBE
Other Business Enterprise	OBE	Certified Emerging Local Business Enterprise	ELBE
Certified Small Local Business Enterprise	SLBE	Small Disadvantaged Business	SDB
Woman-Owned Small Business	WoSB	HUBZone Business	HUBZone
Service-Disabled Veteran Owned Small Business	SDVOSB		

^② As appropriate, Bidder shall indicate if Subcontractor is certified by:

City of San Diego	CITY	State of California Department of Transportation	CALTRANS
California Public Utilities Commission	CPUC	State of California's Department of General Services	CADoGS
City of Los Angeles	LA	State of California	CA

The Bidder will not receive any subcontracting participation percentages if the Bidder fails to submit the required proof of certification.

ELECTRONICALLY SUBMITTED FORMS

THE FOLLOWING FORMS MUST BE SUBMITTED IN PDF FORMAT WITH BID SUBMISSION

The following forms are to be completed by the bidder and submitted (uploaded) electronically with the bid in PlanetBids.

- A. **BID BOND – See Instructions to Bidders, Bidders Guarantee of Good Faith (Bid Security) for further instructions**

- B. **CONTRACTOR’S CERTIFICATION OF PENDING ACTIONS**

Bids will not be accepted until ALL the above-named forms are submitted as part of the bid submittal

BID BOND

**See Instructions to Bidders, Bidder Guarantee of Good Faith
(Bid Security)**

KNOW ALL MEN BY THESE PRESENTS,

That Ortiz Corporation as Principal, and
International Fidelity Insurance Company as Surety, are

held and firmly bound unto The City of San Diego hereinafter called "OWNER," in the sum of **10% OF THE TOTAL BID AMOUNT** for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, said Principal has submitted a Bid to said OWNER to perform the WORK required under the bidding schedule(s) of the OWNER's Contract Documents entitled
30th Street Pipeline Replacement / K-18-1517-DBB-3-A

NOW THEREFORE, if said Principal is awarded a contract by said OWNER and, within the time and in the manner required in the "Notice Inviting Bids" enters into a written Agreement on the form of agreement bound with said Contract Documents, furnishes the required certificates of insurance, and furnishes the required Performance Bond and Payment Bond, then this obligation shall be null and void, otherwise it shall remain in full force and effect. In the event suit is brought upon this bond by said OWNER and OWNER prevails, said Surety shall pay all costs incurred by said OWNER in such suit, including a reasonable attorney's fee to be fixed by the court.

SIGNED AND SEALED, this 5th day of September, 2017

Ortiz Corporation (SEAL)

International Fidelity Insurance Company (SEAL)

(Principal)

(Surety)

By: 
AIDA BANHART V.P.
(Signature)

By: 
Bart Stewart, Attorney-in-Fact
(Signature)

(SEAL AND NOTARIAL ACKNOWLEDGEMENT OF SURETY)

POWER OF ATTORNEY

INTERNATIONAL FIDELITY INSURANCE COMPANY ALLEGHENY CASUALTY COMPANY

ONE NEWARK CENTER, 20TH FLOOR NEWARK, NEW JERSEY 07102-5207

KNOW ALL MEN BY THESE PRESENTS: That INTERNATIONAL FIDELITY INSURANCE COMPANY, a corporation organized and existing under the laws of the State of New Jersey, and ALLEGHENY CASUALTY COMPANY, a corporation organized and existing under the laws of the State of New Jersey, having their principal office in the City of Newark, New Jersey, do hereby constitute and appoint

MOLLY CASHMAN, BART STEWART

Encinitas, CA

their true and lawful attorney(s)-in-fact to execute, seal and deliver for and on its behalf as surety, any and all bonds and undertakings, contracts of indemnity and other writings obligatory in the nature thereof, which are or may be allowed, required or permitted by law, statute, rule, regulation, contract or otherwise, and the execution of such instrument(s) in pursuance of these presents, shall be as binding upon the said INTERNATIONAL FIDELITY INSURANCE COMPANY and ALLEGHENY CASUALTY COMPANY, as fully and amply, to all intents and purposes, as if the same had been duly executed and acknowledged by their regularly elected officers at their principal offices.

This Power of Attorney is executed, and may be revoked, pursuant to and by authority of the By-Laws of INTERNATIONAL FIDELITY INSURANCE COMPANY and ALLEGHENY CASUALTY COMPANY and is granted under and by authority of the following resolution adopted by the Board of Directors of INTERNATIONAL FIDELITY INSURANCE COMPANY at a meeting duly held on the 20th day of July, 2010 and by the Board of Directors of ALLEGHENY CASUALTY COMPANY at a meeting duly held on the 15th day of August, 2009:

"RESOLVED, that: (1) the President, Vice President, Chief Executive Officer or Secretary of the Corporation shall have the power to appoint, and to revoke the appointments of Attorneys-in-Fact or agents with power and authority as defined or limited in their respective powers of attorney, and to execute on behalf of the Corporation and affix the Corporation's seal thereto, bonds, undertakings, recognizances, contracts of indemnity and other written obligations in the nature thereof or related thereto; and (2) any such Officers of the Corporation may appoint and revoke the appointments of joint-control custodians, agents for acceptance of process, and Attorneys-in-fact with authority to execute waivers and consents, on behalf of the Corporation; and (3) the signature of any such Officer of the Corporation and the Corporation's seal may be affixed by facsimile to any power of attorney or certification given for the execution of any bond, undertaking, recognizance, contract of indemnity or other written obligation in the nature thereof or related thereto, such signature and seals, when so used whether heretofore or hereafter, being hereby adopted by the Corporation as the original signature of such officer and the original seal of the Corporation, to be valid and binding upon the Corporation with the same force and effect as though manually affixed."

IN WITNESS WHEREOF, INTERNATIONAL FIDELITY INSURANCE COMPANY and ALLEGHENY CASUALTY COMPANY have each executed and attested these presents on this 31st day of December, 2015:



STATE OF NEW JERSEY
County of Essex

ROBERT W. MINSTER
Chief Executive Officer (International Fidelity Insurance Company) and President (Allegheny Casualty Company)



On this 31st day of December, 2015, before me came the individual who executed the preceding instrument, to me personally known, and, being by me duly sworn, said he is the therein described and authorized officer of INTERNATIONAL FIDELITY INSURANCE COMPANY and ALLEGHENY CASUALTY COMPANY; that the seals affixed to said instrument are the Corporate Seals of said Companies; that the said Corporate Seals and his signature were duly affixed by order of the Boards of Directors of said Companies.

IN TESTIMONY WHEREOF, I have hereunto set my hand affixed my Official Seal, at the City of Newark, New Jersey, the day and year first above written.



A NOTARY PUBLIC OF NEW JERSEY
My Commission Expires April 16, 2019

CERTIFICATION

I, the undersigned officer of INTERNATIONAL FIDELITY INSURANCE COMPANY and ALLEGHENY CASUALTY COMPANY do hereby certify that I have compared the foregoing copy of the Power of Attorney and affidavit, and the copy of the Sections of the By-Laws of said Companies as set forth in said Power of Attorney, with the originals on file in the home office of said companies, and that the same are correct transcripts thereof, and of the whole of the said originals, and that the said Power of Attorney has not been revoked and is now in full force and effect.

IN TESTIMONY WHEREOF, I have hereunto set my hand this 5th day of September 2017

MARIA BRANCO, Assistant Secretary

ALL- PURPOSE CERTIFICATE OF ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California }

County of San Diego }

On 9/05/2017 before me, Brittany Aceves, Notary Public
(Here insert name and title of the officer)

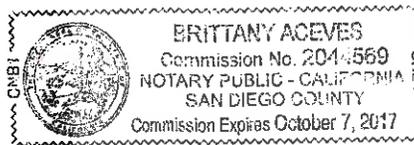
personally appeared Bart Stewart,
 who proved to me on the basis of satisfactory evidence to be the person(s) whose
 name(s) (s) are subscribed to the within instrument and acknowledged to me that
he she/they executed the same in his her/their authorized capacity(ies), and that by
his her/their signature(s) on the instrument the person(s), or the entity upon behalf of
 which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that
 the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Notary Public Signature

(Notary Public Seal)



ADDITIONAL OPTIONAL INFORMATION

DESCRIPTION OF THE ATTACHED DOCUMENT

(Title or description of attached document)

(Title or description of attached document continued)

Number of Pages _____ Document Date _____

CAPACITY CLAIMED BY THE SIGNER

- Individual (s)
 Corporate Officer

- _____
(Title)
- Partner(s)
 Attorney-in-Fact
 Trustee(s)
 Other _____

INSTRUCTIONS FOR COMPLETING THIS FORM

This form complies with current California statutes regarding notary wording and, if needed, should be completed and attached to the document. Acknowledgments from other states may be completed for documents being sent to that state so long as the wording does not require the California notary to violate California notary law.

- State and County information must be the State and County where the document signer(s) personally appeared before the notary public for acknowledgment.
- Date of notarization must be the date that the signer(s) personally appeared which must also be the same date the acknowledgment is completed.
- The notary public must print his or her name as it appears within his or her commission followed by a comma and then your title (notary public).
- Print the name(s) of document signer(s) who personally appear at the time of notarization.
- Indicate the correct singular or plural forms by crossing off incorrect forms (i.e. ~~he/she/they~~, is /are) or circling the correct forms. Failure to correctly indicate this information may lead to rejection of document recording.
- The notary seal impression must be clear and photographically reproducible. Impression must not cover text or lines. If seal impression smudges, re-seal if a sufficient area permits, otherwise complete a different acknowledgment form.
- Signature of the notary public must match the signature on file with the office of the county clerk.
 - ❖ Additional information is not required but could help to ensure this acknowledgment is not misused or attached to a different document.
 - ❖ Indicate title or type of attached document, number of pages and date.
 - ❖ Indicate the capacity claimed by the signer. If the claimed capacity is corporate officer, indicate the title (i.e. CEO, CFO, Secretary).
- Securely attach this document to the signed document with a staple.

California All-Purpose Certificate of Acknowledgment

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California

County of San Diego

S.S.

On Oct 03, 2017 before me, Gyuin Choi, Notary public
Name of Notary Public, Title

personally appeared Aida Bayhart
Name of Signer (1)

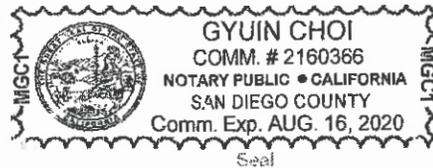
Name of Signer (2)

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

[Signature]
Signature of Notary Public



OPTIONAL INFORMATION

Although the information in this section is not required by law, it could prevent fraudulent removal and reattachment of this acknowledgment to an unauthorized document and may prove useful to persons relying on the attached document.

Description of Attached Document

The preceding Certificate of Acknowledgment is attached to a document titled/for the purpose of Bid Bond

containing 1 pages, and dated 9/5/2017

The signer(s) capacity or authority is/are as:

- Individual(s)
- Attorney-in-fact
- Corporate Officer(s) Vice President
Title

- Guardian/Conservator
- Partner - Limited/General
- Trustee(s)
- Other: _____

representing: Ortiz Corporation
Name of Person(s) Authorized to Sign on Behalf of Premises

Additional Information

Method of Signer Identification

Proved to me on the basis of satisfactory evidence:

- form(s) of identification
- credible witness(es)

Notarial event is detailed in notary journal on:

Page # _____ Entry # _____

Notary contact: _____

Other

- Additional Signer
- Signer(s) Thumbprints(s)

CONTRACTOR'S CERTIFICATION OF PENDING ACTIONS

As part of its bid or proposal (Non-Price Proposal in the case of Design-Build contracts), the Bidder shall provide to the City a list of all instances within the past 10 years where a complaint was filed or pending against the Bidder in a legal or administrative proceeding alleging that Bidder discriminated against its employees, subcontractors, vendors or suppliers, and a description of the status or resolution of that complaint, including any remedial action taken.

CHECK ONE BOX ONLY.

- The undersigned certifies that within the past 10 years the Bidder has NOT been the subject of a complaint or pending action in a legal administrative proceeding alleging that Bidder discriminated against its employees, subcontractors, vendors or suppliers.

- The undersigned certifies that within the past 10 years the Bidder has been the subject of a complaint or pending action in a legal administrative proceeding alleging that Bidder discriminated against its employees, subcontractors, vendors or suppliers. A description of the status or resolution of that complaint, including any remedial action taken and the applicable dates is as follows:

DATE OF CLAIM	LOCATION	DESCRIPTION OF CLAIM	LITIGATION (Y/N)	STATUS	RESOLUTION/REMEDIAL ACTION TAKEN

Contractor Name: ORTIZ CORPORATION

Certified By MARCELINO E. ORTIZ Title PRESIDENT

Name

Marcelino E. Ortiz

Signature

Date 10/26/17

USE ADDITIONAL FORMS AS NECESSARY

City of San Diego

CITY CONTACT: Juan E. Espindola - Contract Specialist, Email: JEEspindola@sandiego.gov

Phone No. (619) 533-4491, Fax No. (619) 533-3633

ADDENDUM A



FOR

30TH STREET PIPELINE REPLACEMENT

BID NO.:	<u>K-18-1517-DBB-3-A</u>
SAP NO. (WBS/IO/CC):	<u>S-12010</u>
CLIENT DEPARTMENT:	<u>2000</u>
COUNCIL DISTRICT:	<u>3</u>
PROJECT TYPE:	<u>KA, KB</u>

BID DUE DATE:

2:00 PM

OCTOBER 3, 2017

CITY OF SAN DIEGO

PUBLIC WORKS CONTRACTS

1010 SECOND AVENUE, 14TH FLOOR, MS 614C

SAN DIEGO, CA 92101

A. CHANGES TO CONTRACT DOCUMENTS

The following changes to the Contract Documents are hereby made effective as though originally issued with the bid package. Bidders are reminded that all previous requirements to this solicitation remain in full force and effect.

B. SUPPLEMENTARY SPECIAL PROVISIONS

1. To Attachment E, Supplementary Special Provisions, page 67, Section 300 – Earthwork, subsection 300-1.1 General, the first paragraph, **DELETE** in its entirety and **SUBSTITUTE** with the following:

Prior to submittal of a Bid for this Work, the Contractor shall inspect the project site to verify the magnitude and cost of all clearing and grubbing required to accomplish the Work on sheets **38362-1-D through 38362-7-D**.
2. To Attachment E, Supplementary Special Provisions, page 68, Section 300 – EARTHWORK, subsection 300-1.4 Payment, item 8, **DELETE** in its entirety and **SUBSTITUTE** with the following:
 8. The lump sum price paid for Clearing and Grubbing shall include full compensation for the sawcutting, removal, protection, and disposal of any and all PCC Pavement, AC Pavement, Base Material, soil, driveway, sidewalk, curb and gutter, bollards, storm drain curb inlets and wings, grates, storm drain pipe, landscaping, irrigation, utility structures (pull boxes, conduit, wiring, etc), fire hydrants and any other materials and objects that are in conflict with the installation of the Work as shown on sheets **38362-1-D through 38362-7-D**.
3. To Attachment E, Supplementary Special Provisions, page 98, Section 314 – Traffic Striping, Curb and Pavement Marking and Pavement Markers, subsection 314-4.4.6, Payment, item 6, **DELETE** in its entirety and **SUBSTITUTE** with the following:
 6. Painting traffic stripes, pavement marking, reflectors, raised reflective pavement markings including curb markings, curb painting, thermoplastic arrows, thermoplastic continental cross walks, arrows and the removal of all existing stripes and markings in conflict with the proposed striping Plan, if needed or otherwise called out for removal and temporary striping, complete in place in accordance with sheets **38362-1-D through 38362-7-D**, the

Standard Specifications, and these Special Provisions, and as directed by the Engineer shall be included in the Contract lump sum price for "Thermoplastic Pavement Markings".

4. To Attachment E, Supplementary Special Provisions, page 99, Section 701 – Construction, subsection 701-2, Payment, item 22, **DELETE** in its entirety and **SUBSTITUTE** with the following:
 22. Work associated with Traffic Signal modifications on **sheets 38362-1-D through 38362-7-D** shall include full compensation for removal and salvaging of existing equipment, furnishing and installing street light and traffic signal standards, posts, pedestals and foundations, pedestrian push buttons, count down times, pedestrian signal heads and hardware, vehicle detector loops, signal and lighting electrical service and switches, luminaires, lamps, ballasts, electrical conduits, conductors and cable, traffic signal and electrical pull boxes, signal heads, city furnished emergency vehicle preemption equipment, furnishing and installing controller assembly, furnishing and installing lighting service cabinet, central control unit, all signs and a conflict monitor unit, and other such items as required on the Plans or these Special Provisions, **shall be included in the Lump Sum Price for "Traffic Signal Modifications"** except for Work covered in separate bid items, and no additional compensation will be allowed.

James Nagelvoort, Director
Public Works Department

Dated: *September 21, 2017*
San Diego, California

JN/RWB/Lad

City of San Diego

CITY CONTACT: Juan E. Espindola - Contract Specialist, Email: JEEspindola@sandiego.gov

Phone No. (619) 533-4491, Fax No. (619) 533-3633

ADDENDUM B



FOR

30TH STREET PIPELINE REPLACEMENT

BID NO.:	<u>K-18-1517-DBB-3-A</u>
SAP NO. (WBS/IO/CC):	<u>S-12010</u>
CLIENT DEPARTMENT:	<u>2000</u>
COUNCIL DISTRICT:	<u>3</u>
PROJECT TYPE:	<u>KA, KB</u>

BID DUE DATE:

2:00 PM

OCTOBER 17, 2017

CITY OF SAN DIEGO

PUBLIC WORKS CONTRACTS

1010 SECOND AVENUE, 14TH FLOOR, MS 614C

SAN DIEGO, CA 92101

A. CHANGES TO CONTRACT DOCUMENTS

The following changes to the Contract Documents are hereby made effective as though originally issued with the bid package. Bidders are reminded that all previous requirements to this solicitation remain in full force and effect.

THE SUBMITTAL DATE FOR THIS PROJECT HAS BEEN **EXTENDED AS STATED ON THE COVER PAGE.**

James Nagelvoort, Director
Public Works Department

Dated: *October 3, 2017*
San Diego, California

JN/RWB/Lad

City of San Diego

CITY CONTACT: Juan E. Espindola - Contract Specialist, Email: JEEspindola@sandiego.gov
Phone No. (619) 533-4491, Fax No. (619) 533-3633

ADDENDUM C



FOR

30TH STREET PIPELINE REPLACEMENT

BID NO.:	<u>K-18-1517-DBB-3-A</u>
SAP NO. (WBS/IO/CC):	<u>S-12010</u>
CLIENT DEPARTMENT:	<u>2000</u>
COUNCIL DISTRICT:	<u>3</u>
PROJECT TYPE:	<u>KA, KB</u>

BID DUE DATE:

**2:00 PM
OCTOBER 26, 2017
CITY OF SAN DIEGO
PUBLIC WORKS CONTRACTS
1010 SECOND AVENUE, 14TH FLOOR, MS 614C
SAN DIEGO, CA 92101**

ENGINEER OF WORK

The engineering Specifications and Special Provisions contained herein have been prepared by or under the direction of the following Registered Engineers:

30th St Pipeline Plans numbered 38145



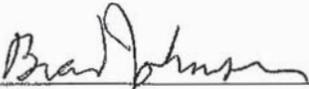
1) For City Engineer

10/12/17
Date

Seal:



Redwood and 30th St Plans numbered 38362



2) For City Engineer

10/12/17
Date

Seal:



A. CHANGES TO CONTRACT DOCUMENTS

The following changes to the Contract Documents are hereby made effective as though originally issued with the bid package. Bidders are reminded that all previous requirements to this solicitation remain in full force and effect.

THE SUBMITTAL DATE FOR THIS PROJECT HAS BEEN **EXTENDED AS STATED ON THE COVER PAGE.**

B. BIDDER'S QUESTIONS

Q1. Will the City be providing the plan sheets as described in the Specification(s) page 99 / Section (701-2) item 22. "Work associated with Traffic Signal modifications on sheets 38032-1-D through 38032-7-D shall include compensation for etc., etc."

Please provide clarification or listed plan sheets regarding this traffic signal work? The sheet numbers described do not appear in the bid package.

A1. See section C, Item 1 of this Addendum.

Q2. Will the City be providing Electrical plan sheets required to provide accurate pricing for Traffic signal work ... as noted for bid item "76"?

A2. No, the current electrical sheet 38362-6-D, "E-1", is all we provide for traffic signal modifications.

Q3. 30th Street Pipeline includes water services that will cross buried high voltage facilities. On recent projects, SDGE stand-by Consultants have required Contractors to hand dig 10' on each side of the facility. Can an allowance item be included to cover hand digging cost required by SDGE?

This allowance item will cover hand digging, and support of SDGE crews while they assist us thru the encasement zone. There may be up to 120+/- crossings.

A3. No allowance will be provided.

Q4. Can you please direct me to the specifications for project 30th Street Pipeline K-18-1517-DBB-3-A.

Specifically for line item Handling and Disposal of non - friable asbestos materials. I see a reference for 306-3.3.4.5 I can't find it in any of the attachments.

A4. Contractor shall follow Whitebook Section 306-3.3.4.1 "Non-Friable Asbestos Cement Pipe" and payment shall be included in the Contract Unit Price per Whitebook Section 306-3.3.4.5 "Payment".

Q5. Regarding: bid items # 144, 145, these bid items were previously 26900LF. Is the City's intent to change quantity?

A5. See section E Additional Changes of this Addendum.

Q6. A large portion of streets on this project are in residential areas, unless there is an emergency why is this project deemed "night work"? Will the City consider allowing the contractor to prepare and submit traffic plans to perform portions of the work during daytime hours?

A6. Approved traffic control plans specify night work.

Q7. Did the City obtain a night work permit or will the contractor be required to obtain? If a noise permit is required by the contractor please provide a line item for an allowance.

A7. Contractor shall follow Whitebook Section 6-1.3 "Work Outside Normal Working Hours" and payment shall be included in the Contract Unit Price per Whitebook Section 6-1.3.1 "Payment".

Q8. Will noise monitoring be required for night work? If so, please provide an allowance line item for, "Noise Monitoring"

A8. Contractor shall follow Whitebook Section 6-1.3 "Work Outside Normal Working Hours" and payment shall be included in the Contract Unit Price per Whitebook Section 6-1.3.1 "Payment".

- Q9. The project runs through several blocks in what we call a commercial or business district, there is no line item for community liaison or community outreach. Will the City be conducting all community outreach and community liaison meetings, phone calls and all public outreach issues relating to this project?
- A9. The City already has a community liaison for this project, but the Contractor will still be required to provide community outreach services in accordance with Whitebook Section 7-16.2 "Community Outreach Services", which is to be included in the Contract Unit Price per Whitebook Section 7-16.4 "Payment".
- Q10. Can you please further clarify specification Section 4-1.3.1 paragraph 3 in Attachment E of the Supplementary Provisions as it pertains to forged steel flanges and fittings? These would be small diameter forged flanges and fittings for appurtenance piping (blow-off & air / vacs) 12"Ø and smaller. Would the flanges and fittings have to have been forged domestically?
- A10. The forging of flanges and fittings does not have to occur domestically (just like the forging of the plate steel to roll the plain pipe steel cylinders). The fabrication of pipelines larger than 18" has to occur domestically where welding, lining and coating has to be inspected.

C. SUPPLEMENT SPECIAL PROVISIONS

1. To Attachment E, Section 701 - Construction, page 99, Subsection 701-2 Payment, Item 22, **DELETE** in its entirety and **SUBSTITUTE** with the following:
 22. Work associated with Traffic Signal modifications on sheet **38362-1-D through 38362-7-D** shall include full compensation for removal and salvaging of existing equipment, furnishing and installing street light and traffic signal standards, posts, pedestals and foundations, pedestrian push buttons, count down times, pedestrian signal heads and hardware, vehicle detector loops, signal and lighting electrical service and switches, luminaires, lamps, ballasts, electrical conduits, conductors and cable, traffic signal and electrical pull boxes, signal heads, city furnished emergency vehicle preemption equipment, furnishing and installing controller assembly,

furnishing and installing lighting service cabinet, central control unit, all signs and a conflict monitor unit, and other such items as required on the Plans or these Special Provisions, **shall be included in the Lump Sum Price for "Traffic Signal Modifications"** except for Work covered in separate bid items, and no additional compensation will be allowed.

D. CERTIFICATION AND FORMS

1. To Certification and Forms **ADD**, Certificate of Compliance, Materials and Workmanship Compliance and Notice of Materials to Be Used on pages 7 through 8 of this Addendum.

E. ADDITIONAL CHANGES

1. To following are additional change to the Line Items in the PlanetBids Tab:

For clarify where applicable **ADDITIONS**, if any, have been **Underlined** and **DELETIONS**, if any have been **Stricken-out**.

Section	Item Code	Description	UoM	Qty.	Payment Reference
Alternate Items A 30th PL	237110	High lining Removed by the Contractor (Base Bid Item 123) High-lining Removed by the Contractor (Base Bid Item Deduction)	LF	-4 <u>-26900</u>	901-1.3
Alternate Items A 30th PL	237110	High-lining Installation by the Contractor	LF	4 <u>26900</u>	901-1.3

James Nagelvoort, Director
Public Works Department

Dated: *October 13, 2017*
San Diego, California

JN/RWB/Lad

COMPANY LETTERHEAD

CERTIFICATE OF COMPLIANCE

Materials and Workmanship Compliance

For Contract or Task _____

I certify that the material listed below complies with the materials and workmanship requirements of the Caltrans Contract Plans, Special Provisions, Standard Specifications, and Standard Plans for the contract listed above.

I also certify that I am an official representative for _____, the manufacturer of the material listed above. Furthermore, I certify that where California test methods, physical or chemical test requirements are part of the specifications, that the manufacturer has performed the necessary quality control to substantiate this certification.

Material Description:

Manufacturer: _____
Model: _____
Serial Number (if applicable) _____
Quantity to be supplied: _____
Remarks: _____

Signed by: _____

Printed Name: _____

Title: _____

Company: _____

Date: _____

City of San Diego

Public Works Department, Field Division

NOTICE OF MATERIALS TO BE USED

To: _____
Resident Engineer

Date: _____, 20__

You are hereby notified that the materials required for use under Contract No. _____
for construction of _____
_____ in the City of San Diego, will be obtained from sources herein designated.

CONTRACT ITEM NO. (Bid Item)	KIND OF MATERIAL (Category)	NAME AND ADDRESS WHERE MATERIAL CAN BE INSPECTED (At Source)

It is requested that you arrange for a sampling, testing, and inspection of the materials prior to delivery, in accordance with Section 4-1.11 of the WHITEBOOK, where it is practicable, and in accordance with your policy. It is understood that source inspection does not relieve the Contractor of full responsibility for incorporating in the work, materials that comply in all respects with the contract plans and specifications, nor does it preclude subsequent rejection of materials found to be undesirable or unsuitable.

Distribution:

Supplier

Signature of Supplier

Address

Bid Results

Bidder Details

Vendor Name ORTIZ CORPORATION
Address 2000 McKinley Av
 National City, CA 91950
 United States
Respondee Jose Ortiz
Respondee Title Estimator
Phone 619-434-7925 Ext.
Email jose@ortizcorporation.com
Vendor Type PQUAL,CADIR,Local
License # 602454
CADIR 1000001045

Bid Detail

Bid Format Electronic
Submitted October 26, 2017 1:57:01 PM (Pacific)
Delivery Method
Bid Responsive
Bid Status Submitted
Confirmation # 118118
Ranking 0

Respondee Comment

Buyer Comment

Attachments

File Title	File Name	File Type
Certificate of Pending Actions	Certificate of Pending Action.pdf	Contractor's Certification of Pending Actions
Additive Deductive Alternate	Additive Deductive Alternate.pdf	Additive/Deductive Alternate Form
Bid Bond	New Signed Bid Bond.pdf	Bid Bond

Line Items

Type	Item Code	UOM	Qty	Unit Price	Line Total	Comment
	Main Bid RW at 30th					
1	Field Orders (EOC Type II)					
		AL	1	\$10,000.00	\$10,000.00	
2	Clearing & Grubbing					
	238910	LS	1	\$72,500.00	\$72,500.00	
3	Adjusting Existing Gate Valve Cover to Grade					
	237310	EA	4	\$350.00	\$1,400.00	
4	Adjusting Existing Sewer Manhole Frame and Cover to Grade					
	237310	EA	1	\$525.00	\$525.00	

Bid Results

Type	Item Code	UOM	Qty	Unit Price	Line Total	Comment
5	Curb Inlet Type B 237110	EA	7	\$10,000.00	\$70,000.00	
6	Curb Inlet Type A 237110	EA	1	\$9,900.00	\$9,900.00	
7	Clean Out Type A-4 (Modified with M-1) 237110	EA	4	\$8,000.00	\$32,000.00	
8	Concrete Lug 237110	EA	1	\$1,500.00	\$1,500.00	
9	Curb Ramp (Type A) with Replaceable Polymer Detectable Warning Tiles 237310	EA	4	\$4,000.00	\$16,000.00	
10	18 -Inch RCP Storm Drain 237110	LF	83	\$371.00	\$30,793.00	
11	Cold Mill AC Pavement (> 3") 237310	SF	6900	\$1.94	\$13,386.00	
12	Asphalt Concrete 237231	TON	121	\$170.00	\$20,570.00	
13	Concrete Pavement 237310	CY	25	\$500.00	\$12,500.00	
14	Curb and Gutter (6 Inch Curb, Type G) 237310	LF	172	\$49.20	\$8,462.40	
15	Sidewalk 237310	SF	1475	\$10.50	\$15,487.50	
16	Fire Hydrant Assembly and Marker (6-Inch, 2-Port) 237110	EA	1	\$9,050.00	\$9,050.00	
17	Thermoplastic Pavement Markings 237310	LS	1	\$2,310.00	\$2,310.00	
18	Traffic Signal Modification 238210	LS	1	\$178,000.00	\$178,000.00	
19	Pull-Box 238210	EA	14	\$600.00	\$8,400.00	
				Subtotal	\$512,783.90	
Main Bid 30th PL						

Bid Results

Type	Item Code	UOM	Qty	Unit Price	Line Total	Comment
20	Bonds (Payment and Performance)					
	524126	LS	1	\$178,000.00	\$178,000.00	
21	Archaeological and Native American Monitoring Program					
	541690	LF	12470	\$6.32	\$78,810.40	
22	Paleontological Monitoring Program					
	541690	LF	8410	\$2.35	\$19,763.50	
23	Archaeological and Native American Mitigation and Curation (EOC Type I)					
	541690	AL	1	\$35,000.00	\$35,000.00	
24	Paleontological Mitigation and Excavation					
	541690	CY	410	\$263.00	\$107,830.00	
25	Suspension of Work - Resources					
	541690	DAYS	20	\$3,500.00	\$70,000.00	
26	Caltrans Encroachment Permit (EOC Type I)					
	237310	AL	1	\$5,000.00	\$5,000.00	
27	MTS Right of Entry Permit					
	237310	AL	1	\$5,000.00	\$5,000.00	
28	WPCP Development					
	541330	LS	1	\$1,500.00	\$1,500.00	
29	WPCP Implementation					
	237990	LS	1	\$49,800.00	\$49,800.00	
30	Video Recording of Existing Conditions					
	238990	LS	1	\$3,500.00	\$3,500.00	
31	Preparation of Hazardous Waste Management Plan and Reporting					
	238990	LS	1	\$5,750.00	\$5,750.00	
32	Testing, Sampling, Site Storage and Handling of Petroleum Contaminated Soil					
	238990	TON	800	\$38.50	\$30,800.00	
33	Loading, Transportation, and Disposal of Petroleum Contaminated Soil					
	238990	TON	800	\$93.50	\$74,800.00	
34	Mobilization					
	237110	LS	1	\$825,000.00	\$825,000.00	
35	Field Orders (EOC Type II)					
		AL	1	\$460,000.00	\$460,000.00	

Bid Results

Type	Item Code	UOM	Qty	Unit Price	Line Total	Comment
36	Additional Pavement Removal and Disposal					
	237310	CY	240	\$200.00	\$48,000.00	
37	Removal and Disposal of Railroad Tracks					
	238910	LF	2320	\$95.00	\$220,400.00	
38	Tree Removal					
	238910	EA	3	\$3,900.00	\$11,700.00	
39	Cement Treated Base					
	238910	CY	50	\$125.00	\$6,250.00	
40	Traffic Detector Loop and Appurtenance Replacement					
	237310	EA	129	\$380.00	\$49,020.00	
41	Removal of Humps and Pavement Irregularities					
	237310	LF	1400	\$8.00	\$11,200.00	
42	Cold Mill AC Pavement (0 inch - 1½ inch)					
	237310	SF	172500	\$1.00	\$172,500.00	
43	Cold Mill Header Cuts					
	237310	LF	1590	\$8.00	\$12,720.00	
44	Asphalt Pavement Repair					
	237310	TON	330	\$217.00	\$71,610.00	
45	Miscellaneous Asphalt Patching					
	237310	TON	330	\$215.00	\$70,950.00	
46	Rubber Polymer Modified Slurry (RPMS) Type I					
	237310	SF	61600	\$1.00	\$61,600.00	
47	Rubber Polymer Modified Slurry (RPMS) Type II					
	237310	SF	650600	\$0.28	\$182,168.00	
48	Rubber Polymer Modified Slurry (RPMS) Type III					
	237310	SF	239900	\$0.36	\$86,364.00	
49	Pavement Restoration Adjacent to Trench					
	237310	SF	26970	\$15.00	\$404,550.00	
50	Asphalt Concrete					
	237310	TON	30	\$15.00	\$450.00	
51	Asphalt Concrete Overlay					
	237310	TON	1620	\$135.00	\$218,700.00	

Bid Results

Type	Item Code	UOM	Qty	Unit Price	Line Total	Comment
52	Bus Stop Pad					
	237310	CY	100	\$495.00	\$49,500.00	
53	Pavement Fabric					
	237310	SY	7700	\$7.50	\$57,750.00	
54	Crack Seal					
	237310	LB	5000	\$6.50	\$32,500.00	
55	Contractor Date Stamps and Impressions					
	237310	EA	13	\$300.00	\$3,900.00	
56	Additional Curb and Gutter Removal and Replacement					
	237310	LF	140	\$40.00	\$5,600.00	
57	Additional Sidewalk Removal and Replacement					
	237310	SF	870	\$13.00	\$11,310.00	
58	Cross Gutter					
	237310	SF	4630	\$18.00	\$83,340.00	
59	Alley Apron					
	237310	SF	400	\$14.00	\$5,600.00	
60	Curb Ramp (Type A) with Stainless Steel Detectable Warning Tiles					
	237310	EA	25	\$3,450.00	\$86,250.00	
61	Curb Ramp (Type B) with Stainless Steel Detectable Warning Tiles					
	237310	EA	12	\$3,450.00	\$41,400.00	
62	Curb Ramp (Type C1) with Stainless Steel Detectable Warning Tiles					
	237310	EA	3	\$3,565.00	\$10,695.00	
63	Curb Ramp (Type C2) with Stainless Steel Detectable Warning Tiles					
	237310	EA	1	\$3,565.00	\$3,565.00	
64	Curb Ramp (Type D) with Stainless Steel Detectable Warning Tiles					
	237310	EA	7	\$3,335.00	\$23,345.00	
65	Curb Ramp (Case A) with Stainless Steel Detectable Warning Tiles					
	237310	EA	4	\$3,565.00	\$14,260.00	
66	Curb Ramp Modified (Type Directional, Per Sheet 65) with Stainless Steel Detectable Warning Tiles					
	237310	EA	3	\$5,133.00	\$15,399.00	
67	Striping					
	237310	LS	1	\$41,000.00	\$41,000.00	

Bid Results

Type	Item Code	UOM	Qty	Unit Price	Line Total	Comment
68	Thermoplastic Traffic Striping					
	237310	LF	1350	\$3.00	\$4,050.00	
69	Thermoplastic Pavement Markings					
	237310	LS	1	\$13,655.40	\$13,655.40	
70	Continental Crosswalks					
	237310	SF	8400	\$3.00	\$25,200.00	
71	Traffic Control					
	237310	LS	1	\$811,000.00	\$811,000.00	
72	Flashing Arrow Boards					
	237310	LS	1	\$10,000.00	\$10,000.00	
73	Portable Changeable Message Signs (EOC Type I)					
	237310	AL	1	\$2,500.00	\$2,500.00	
74	SDG&E Fee Allowance (EOC Type I)					
	238210	AL	1	\$10,000.00	\$10,000.00	
75	Remove and Reinstall Traffic Signs					
	238210	EA	4	\$450.00	\$1,800.00	
76	Install Traffic Sign On Signal Pole					
	238210	EA	1	\$450.00	\$450.00	
77	Traffic Signal Modification					
	238210	EA	1	\$16,500.00	\$16,500.00	
78	Pedestrian Barricade					
	237310	EA	13	\$650.00	\$8,450.00	
79	Curb Ramp Barricade					
	237310	EA	8	\$1,100.00	\$8,800.00	
80	Relocate/Install Pedestrian Push Button Pole					
	237310	EA	14	\$1,650.00	\$23,100.00	
81	536/390 Zone Pressure Regulating Station Relocation					
	237110	LS	1	\$635,000.00	\$635,000.00	
82	Sump Pump and Electrical Conduit and Wiring to SDG&E Service					
	237110	LS	1	\$220,000.00	\$220,000.00	
83	Cathodic Protection					
	237110	LS	1	\$145,000.00	\$145,000.00	

Bid Results

Type	Item Code	UOM	Qty	Unit Price	Line Total	Comment
84	Structure Excavation (Bridge)					
	237110	CY	108	\$1,600.00	\$172,800.00	
85	Structure Backfill (Bridge)					
	237110	CY	24	\$275.00	\$6,600.00	
86	Structural Concrete, Box Culvert					
	237110	CY	42	\$2,200.00	\$92,400.00	
87	Drill and Bond Dowel					
	237110	LF	25	\$275.00	\$6,875.00	
88	Bar Reinforcing Steel (Box Culvert)					
	237110	LB	11000	\$3.00	\$33,000.00	
89	Miscellaneous Metal (Bridge)					
	237110	LB	2240	\$10.00	\$22,400.00	
90	Remove Concrete Structure					
	237110	LS	1	\$21,500.00	\$21,500.00	
91	PTFE Pipe Slide Assembly					
	237110	EA	2	\$28,000.00	\$56,000.00	
92	Removal of Existing 536/390 Pressure Regulating Station					
	237110	LS	1	\$90,000.00	\$90,000.00	
93	Removal or Abandonment of Existing Water Facilities					
	237110	LF	5660	\$10.00	\$56,600.00	
94	Large Water Main Abandonment					
	237110	LS	1	\$122,000.00	\$122,000.00	
95	Removal of Abandoned Water Meter Box					
	237110	EA	19	\$550.00	\$10,450.00	
96	Handling and Disposal of Non-friable Asbestos Material					
	237110	LF	5700	\$12.00	\$68,400.00	
97	Additional Bedding					
	237110	CY	500	\$100.00	\$50,000.00	
98	Water Main (8-Inch)					
	237110	LF	780	\$157.00	\$122,460.00	
99	Water Main (8-Inch, Class 305)					
	237110	LF	170	\$105.00	\$17,850.00	

Bid Results

Type	Item Code	UOM	Qty	Unit Price	Line Total	Comment
100	Water Main (12-Inch) 237110	LF	3450	\$130.00	\$448,500.00	
101	Water Main (12-Inch, Class 305) 237110	LF	2980	\$150.00	\$447,000.00	
102	Water Main (16-Inch) 237110	LF	7980	\$190.00	\$1,516,200.00	
103	Water Main (16-Inch, Class 305) 237110	LF	4630	\$213.00	\$986,190.00	
104	Water Main (16-Inch, CML and EC) 237110	LF	340	\$407.00	\$138,380.00	
105	Water Main (24-Inch, CML and TW) 237110	LF	90	\$1,455.00	\$130,950.00	
106	Water Main (30-Inch, CML and TW) 237110	LF	80	\$2,184.00	\$174,720.00	
107	Water Main (36-Inch, CML and TW) 237110	LF	4380	\$592.00	\$2,592,960.00	
108	Water Main (42-Inch, CML and TW) 237110	LF	2010	\$656.00	\$1,318,560.00	
109	Water Valve Bypass for Cross Mainline 16" and Larger 237110	EA	7	\$26,500.00	\$185,500.00	
110	Water Valve Bypass for T-Mainline 16 Inch and Larger 237110	EA	3	\$18,000.00	\$54,000.00	
111	Trench Shoring 237110	LS	1	\$368,000.00	\$368,000.00	
112	Butterfly Valve (16-Inch, Class 150B) 237110	EA	52	\$5,150.00	\$267,800.00	
113	Butterfly Valve (24-Inch, Class 150B) 237110	EA	3	\$8,800.00	\$26,400.00	
114	Butterfly Valve (30-Inch, Class 150B) 237110	EA	6	\$14,000.00	\$84,000.00	
115	Butterfly Valve (36-Inch, Class 150B) 237110	EA	11	\$13,600.00	\$149,600.00	

Bid Results

Type	Item Code	UOM	Qty	Unit Price	Line Total	Comment
116	Butterfly Valve (42-Inch, Class 150B)					
	237110	EA	5	\$20,200.00	\$101,000.00	
117	Gate Valve (8-Inch)					
	237110	EA	27	\$2,200.00	\$59,400.00	
118	Gate Valve (12-Inch)					
	237110	EA	34	\$3,600.00	\$122,400.00	
119	Fire Hydrant Assembly and Marker (6-Inch, 2-Port)					
	237110	EA	22	\$9,500.00	\$209,000.00	
120	Fire Hydrant Assembly and Marker (6-Inch, 3-Port)					
	237110	EA	19	\$12,500.00	\$237,500.00	
121	Fire Service Connection and Assembly (3-Inch)					
	237110	EA	1	\$14,000.00	\$14,000.00	
122	Fire Service Connection and Assembly (4-Inch)					
	237110	EA	3	\$15,000.00	\$45,000.00	
123	Fire Service Connection and Assembly (6-Inch)					
	237110	EA	1	\$16,500.00	\$16,500.00	
124	Water Service (1-Inch)					
	237110	EA	337	\$4,250.00	\$1,432,250.00	
125	Water Service (2-Inch)					
	237110	EA	37	\$5,350.00	\$197,950.00	
126	Water Service Transfer (1-Inch)					
	237110	EA	2	\$1,650.00	\$3,300.00	
127	Blowoff Valve Assembly (2-Inch)					
	237110	EA	5	\$4,950.00	\$24,750.00	
128	Blowoff Valve Assembly (4-Inch)					
	237110	EA	21	\$5,600.00	\$117,600.00	
129	Blowoff Valve Assembly (6-Inch)					
	237110	EA	5	\$5,950.00	\$29,750.00	
130	Air and Vacuum (Air Release) Valve Assembly (1 Inch, Class 150)					
	237110	EA	11	\$6,150.00	\$67,650.00	
131	Air and Vacuum (Air Release) Valve Assembly (2 Inch, Class 150)					
	237110	EA	11	\$6,400.00	\$70,400.00	

Bid Results

Type	Item Code	UOM	Qty	Unit Price	Line Total	Comment
132	Air and Vacuum (Air Release) Valve Assembly (4 Inch, Class 150)					
	237110	EA	2	\$8,950.00	\$17,900.00	
133	Access Manhole (Type 325)					
	237110	EA	5	\$38,500.00	\$192,500.00	
134	Temporary Resurfacing					
	237310	TON	1000	\$145.00	\$145,000.00	
135	Thrust Blocks and Anchor Blocks for 16 Inch and Larger Water Mains					
	237110	EA	27	\$675.00	\$18,225.00	
136	Imported Backfill For Trench					
	237110	TON	2430	\$72.00	\$174,960.00	
137	Two (2) Double Ball Flex Joints at Bridges					
	237110	LS	1	\$37,800.00	\$37,800.00	
138	Abandon Water Services (Stiffs)					
	237110	EA	1	\$1,000.00	\$1,000.00	
139	Trenchless Construction - Commercial Street					
	237990	LS	1	\$515,000.00	\$515,000.00	
140	Contractor Furnished Materials for the City Forces High-line Work					
	237110	LS	1	\$123,750.00	\$123,750.00	
141	Contractor Furnished Materials for City Forces Connection, Cut and Plug, and Cut-in Work for Mains 16-inch and Larger.					
	237110	LS	1	\$24,500.00	\$24,500.00	
142	High-lining Removed by the Contractor					
	237110	LF	26900	\$3.00	\$80,700.00	
143	Temporary Resurfacing					
	237110	TON	300	\$200.00	\$60,000.00	
				Subtotal	\$19,977,535.30	
	Alternate Items A 30th PL					
144	High-lining Removed by the Contractor (Base Bid Item Deduction)					
	237110	LF	-26900	\$3.00	(\$80,700.00)	
145	High-lining Installation by the Contractor					
	237110	LF	26900	\$12.00	\$322,800.00	
				Subtotal	\$242,100.00	
	Alternate Items B 30th PL					
146	Connections to The Existing System by Contractor (8 Inch through 12 Inch)					
	237110	EA	45	\$6,250.00	\$281,250.00	

Bid Results

Type	Item Code	UOM	Qty	Unit Price	Line Total	Comment
147	Connections to The Existing System by Contractor (16-Inch)					
	237110	EA	3	\$7,450.00	\$22,350.00	
148	Connections to The Existing System by Contractor (24-inch)					
	237110	EA	2	\$29,500.00	\$59,000.00	
149	Connections to The Existing System by Contractor (30-inch)					
	237110	EA	4	\$29,500.00	\$118,000.00	
150	Connections to The Existing System by Contractor (36-inch)					
	237110	EA	2	\$32,000.00	\$64,000.00	
151	Cut-in Tee by Contractor 12x8-Inch (includes all work and materials per note 7, sheet C-40)					
	237110	EA	1	\$7,500.00	\$7,500.00	
152	Cut-in Tee by Contractor 16x8-Inch (includes all work and materials per note 1, sheet C-16)					
	237110	EA	1	\$12,500.00	\$12,500.00	
153	Cut-in Cross by Contractor 16x8-Inch (includes all work and materials per note 1, sheet C-20)					
	237110	EA	1	\$22,000.00	\$22,000.00	
154	Cut-in Cross by Contractor 16x8-Inch (includes all work and materials per note 4, sheet C-26)					
	237110	EA	1	\$18,500.00	\$18,500.00	
155	Cut-in Cross by Contractor 16x12-Inch (includes all work and materials per note 9, sheet C-13)					
	237110	EA	1	\$39,500.00	\$39,500.00	
156	Cut-in Cross by Contractor 16x12-Inch (includes all work and materials per note 1, sheet C-19)					
	237110	EA	1	\$19,250.00	\$19,250.00	
157	Cut-in Tee by Contractor 30x16-Inch (includes all work and materials per note 3, sheet C-27)					
	237110	EA	1	\$45,000.00	\$45,000.00	
158	Cut and Plug by Contractor					
	237110	EA	99	\$4,000.00	\$396,000.00	
159	Pavement Restoration for Final Connection					
	237110	LS	1	\$18.00	\$18.00	
Subtotal					\$1,104,868.00	
Total					\$21,837,287.20	

Subcontractors

Name & Address	Description	License Num	CADIR	Amount	Type
Golden State Boring & Pipe Jacking Inc. 7000 Merrill Ave. Box 40 Chino, CA 91710 United States	Pipe Jacking	678500	1000005788	\$156,400.00	
Ahrens Mechanical 5959 Mission Gorge Road, Suite 204 San Diego, CA 92120 United States	pressure reducing station piping & demo	957287	1000000554	\$779,000.00	PQUAL,SLBE,DVBE, CADIR,SDVSB

Bid Results

Name & Address	Description	License Num	CADIR	Amount	Type
G. Scott Asphalt, Inc. 358 Trousdale Drive Chula Vista, CA 91910 United States	Slurry Seal Crack Seal	751836	1000004252	\$308,404.00	CAU,MALE,PQUAL, SLBE,DVBE,SDVSB
Pavement Recycling Systems, Inc. 10240 San Sevaine Way Jurupa Valley, CA 91752 United States	Asphalt Milling	569352	1000003363	\$27,000.00	PQUAL
Southern Contracting Company 559 North Twin Oaks Valley Road San Marcos, CA 92069 United States	Instrumentation	222252	1000002172	\$252,500.00	PQUAL
Corrpro 10260 Matern Place Santa Fe Springs, CA 90670 United States	Cathodic Protection	764878	1000002963	\$80,000.00	
McGrath Consulting PO BOX 2488 El Cajon, CA 92021 United States	SWPPP	000000	1000037165	\$31,050.00	ELBE,SDB
Soclaris Contracting 7437 Lowell Ct. La Mesa, CA 91942 United States	Haz Mat	793838	1000011964	\$101,000.00	CAU,MALE,SLBE,DV BE,CADIR,SDVSB
RAP Engineering, Inc. 503 E. Mission Road San Marcos, CA 92069 United States	Asphalt	880956	1000002968	\$1,467,823.00	CADIR,DBE,LAT,MA LE,MBE,SDB,SLBE
Douglas Matheson & Co PO Box 4567 Oceanside, CA 92052 United States	community liasion	000000	0000000000	\$55,450.00	DBE,ELBE,MALE,MB E,NAT
Vailston Company, Inc. 774 N Twin Oaks Valley Rd, Suite C San Marcos, CA 92069 United States	Concrete	862611	1000002408	\$350,347.00	CAU,MALE,ELBE,PQ UAL,CADIR
Meridian Archaeological Services & Research 1104 California Street Imperial Beach, CA 91932 United States	archo/paleo/native american	000000	0000000000	\$64,035.00	ELBE,LAT,MALE
SRK Engineering, INC 494 Ocean View Dr. Vista, CA 92084 United States	Water Services	10173836	1000045353	\$1,008,900.00	PAC,FEM,ELBE,DBE ,MBE,SDB,WBE,WO SB
Statewide Stripes, Inc. PO BOX 600710 San Diego, CA 92160 United States	Striping	788286	1000001334	\$85,129.00	
SCST, Inc. 6280 Riverdale Street San Diego, CA 92120 United States	Testing	GE 2752	1000003802	\$106,592.00	CAU,MALE,SLBE,DV BE,CADIR,SDVSB
Lekos Electric, Inc. 1370 Pioneer Way El Cajon, CA 92020 United States	traffic signal	588410	1000004487	\$249,000.00	HUBZ,WBE
HUDSON SAFE-T-LITE RENTALS 777 GABLE WAY EL CAJON, CA 92020 United States	traffic control	000000	0000000000	\$60,000.00	SLBE

Bid Results

Name & Address	Description	License Num	CADIR	Amount	Type
Solid Structures, Inc. P.O.Box 848 La Mesa, CA 91944 United States	structural concrete	758791	1000015100	\$172,900.00	ELBE
Rectrucking inc 1128 2nd ave Chula vista, CA 91911 United States	Trucking	000000	0000000000	\$25,000.00	LAT,MALE,ELBE
G. Scott Asphalt, Inc. 358 Trousdale Drive Chula Vista, CA 91910 United States	Slurry Seal	751836	1000004252	\$308,404.00	
CODE 3 Media 663 S Rancho Santa Fe Suite 177 San Marcos, CA 92078 United States	precon video	000000	0000000000	\$2,295.00	ELBE